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American Forest & Paper Association

Paper
Paperboard
Pulp
Capacity

and Fiber Consumption

1992 - 1996

34th Annual Survey

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The American Forest & Paper Association has conducted annual capacity surveys in the primary pulp and paper industry for more than thirty years. Over time, the scope of the surveys has expanded significantly and now includes responses from producers of more than 90% of total U.S. paper, paperboard and wood pulp.

The outline below is intended to clarify definitions and methodology and to assist the user in utilizing the capacity and raw materials data in the survey report.

- Capacity projects included in the survey are firm commitments. Such projects will usually be approved by senior management or boards of directors, have assured financing and, in many instances, will include site acquisition and signed contracts for machines or equipment.
- Published capacities for paper and paperboard represent potential for *primary finished production* before conversion into end products. Capacities for wood pulp are measured at a 10% moisture content. Consumption of pulp wood, recovered paper and other fiber are *as received at mill.*
- The definition of practical maximum capacity assumes normal operating conditions, full demand, adequate supplies of raw materials and available labor. The concept assumes that machines operate on an *all out* basis on their customary grade mix.
- Daily capacities are extrapolated to annual totals based on the maximum number of days each machine can operate in one year. Downtime, scheduled before the start of the year, other than due to lack of orders is excluded from capacity. Unscheduled downtime, is included.

  (Maximum operating days reported on pages 12 through 17 of this survey represent weighted averages of all machines in the industry).
- Capacity changes include the effect of new machine installations, rebuilds, shutdowns, revised operating schedules, grade and basis weight changes or other modifications to existing facilities. Changes also include grade reallocations on *swing* machines which reflect intermediate or long-range market strategies and not short-term adjustments to market conditions which are often revised on a monthly basis.
- Capacities of *swing* or multiproduct machines are distributed on the basis of actual grade mix. For example, a swing machine in one year may be capable of producing 100,000 tons of unbleached kraft linerboard, if run exclusively on board, or 80,000 tons of unbleached kraft paper, if run exclusively on paper. If, in fact, the machine produces board for 75% of its operating year and paper for 25%, its capacity would be published as 75,000 tons of linerboard and 20,000 tons of paper. Planned changes in grade allocations *swings* in future years would be calculated in the same way.
- Capacities of dismantled or permanently inactive machines are removed from estimates immediately on shutdown. Capacities of other idle machines are removed after one year unless resumed operation is in prospect.
- Capacities of individual mills are directly related to verified levels of production.
- Edit procedures establish that types and quantities of fiber consumed in each mill are consistent with verified annual production.
- Inconsistencies in reported data are reconciled by direct contacts with company executives.
- Published capacities are grade totals summarized to regional and industry levels. Specific establishment data are not disclosed in the survey unless publicly announced by the respective companies.

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Summary

The 1993 Capacity Survey reports that industry plans to expand capacity to produce paper and paperboard have changed relatively little from a year ago. Producers now plan to increase paper and paperboard manufacturing capacity by 5.3 million annual tons between 1994 and 1996. Wood pulp capacity is expected to grow at a slower rate, totaling 1.2 annual million tons over the same period. These plans are consistent with a scenario of restrained economic expansion.

The single area in which industry expansion is expected to be brisk is in the use of recovered paper as furnish for a wide variety of paper and paperboard grades. In early 1990, the paper industry voluntarily committed itself to the goal of recycling, by 1995, 40% of all paper consumed in the U.S. In the three years since that goal was announced, recovered paper utilization by the industry has increased at a rate four times faster than production of paper and paperboard. Respondents to this survey indicate that by 1996, their consumption of recovered paper could rise to 34.4 million annual tons, assuming full utilization of productive capacity.

Overview

For the third consecutive year, industry plans to increase paper making capacity trail rates of growth established over the previous ten-year period. Paper and paperboard producing capacity is now expected to grow, from a base of slightly over 91 million annual tons in 1993, to 96.3 million annual tons in 1996. This three-year increase of 5.3 million tons translates into an average annual growth rate of 1.9%, virtually unchanged from the 1.8% rate reported last year for 1993-1995. The outlook for wood pulp capacity, in contrast, has changed markedly from a year ago. Following two years of moderate growth, industry wood pulp manufacturing capacity declined by 205,000 tons from 1992 to 1993. The outlook to 1996 shows annual capacity expanding to 69 million tons, a 1.2 million ton gain, implying a meager average rate of increase of 0.6%

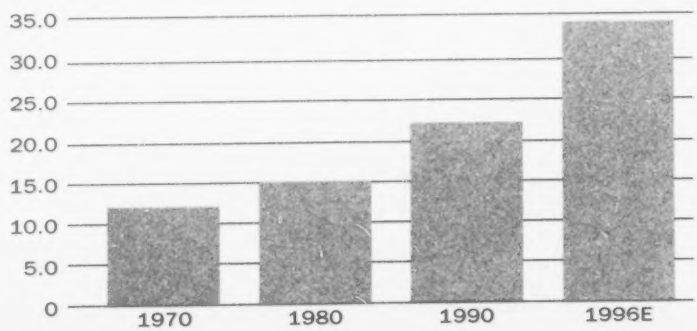
Note: Unless stated otherwise, all references to paper and paperboard and wood pulp exclude construction grades.

TABLE 1:
GROWTH TRENDS IN CAPACITY

Thousands short tons

GRADES	ADDITIONS 1994-1996: 3 YEAR INCREASE	ADDITIONS 1994-1996: AVERAGE ANNUAL GROWTH	ADDITIONS 1982-1992: 10 YEAR INCREASE	ADDITIONS 1982-1992: AVERAGE ANNUAL GROWTH
TOTAL ALL GRADES PAPER & PAPERBOARD	**5,306**	**1.9**	**19,213**	**2.3**
TOTAL PAPER & PAPERBOARD	**5,301**	**1.9**	**19,921**	**2.5**
TOTAL PAPER	**1,987**	**1.4**	**1,447**	**2.3**
NEWSPRINT	8	—	9,807	2.5
PRINTING & WRITING	1,496	1.9	7,757	3.5
of which Uncoated Groundwood	60	1.1	173	1.0
Coated Groundwood	177	1.2	1,185	2.9
Uncoated Free Sheet	996	2.4	4,197	3.8
Coated Free Sheet	238	1.8	1,905	5.9
PACKAGING & IND. CONV.	101	0.6	(739)	(1.3)
TISSUE	382	1.9	1,342	2.3
TOTAL PAPERBOARD	**3,314**	**2.4**	**10,114**	**2.5**
UNBLEACHED KRAFT	856	1.2	5,197	2.6
of which Kraft Linerboard	527	0.8	4,558	2.5
SOLID BLEACHED	639	4.1	830	1.8
SEMICHEMICAL	109	0.6	789	1.4
RECYCLED	1,710	4.5	3,298	3.3
of which Recycled Containerboard	1,425	10.1	2,205	7.5
CONSTRUCTION GRADES	**5**	**0.1**	**(708)**	**(2.8)**
TOTAL ALL GRADES WOOD PULP	**1,151**	**0.6**	**10,894**	**1.7**
TOTAL WOOD PULP FOR PAPER & BOARD	**1,153**	**0.6**	**11,752**	**1.9**
DISSOLVING & SPECIAL ALPHA	1	—	(56)	(0.4)
SULFITE	—	—	(339)	(2.1)
SULFATE*	1,172	0.7	10,906	2.3
Bleached	1,154	1.2	9,221	3.7
Unbleached	18	—	1,711	0.8
SEMICHEMICAL	6	—	4	—
MECHANICAL	(26)	(0.1)	1,237	1.9
CONSTRUCTION GRADES	**(2)**	**(0.1)**	**(858)**	**(8.6)**
TOTAL ALL GRADES MARKET PULP	**(159)**	**(0.5)**	**3,306**	**3.8**
Chemical Paper Grades	(160)	(0.6)	3,370	4.6
TOTAL RECOVERED PAPER MARKET PULP	**1,022**	**37.9**	**n.a.**	**n.a.**

GROWTH IN CONSUMPTION — 1970-1996* Millions short tons



*Recyclable paper as furnish for paper & paperboard manufacture.

E=Estimate

per year. The wood pulp industry has been affected by several factors, including increased use of recovered paper and by timber cutting restrictions in the Pacific Northwest, resulting in the closure of three pulp mills during 1992.

Industry capacity to produce market wood pulp — pulp offered for sale to unaffiliated manufacturers — remained unchanged over the past year at 10.7 million annual tons. Moreover, capacity is expected to decline slightly over the time period included in the survey, falling to 10.6 million annual tons in 1996. Offsetting the decline in market wood pulp capacity, will be the explosive growth in capacity for recovered paper market pulp, an emerging sector of the industry which produces pulp from recycled paper. From a base of only 630,000 annual tons in 1993, recovered paper market pulp producers report plans to increase their capacity to 1.7 million annual tons in 1996, a rate of increase averaging almost 37% per year. It should be noted that not all planned expansions included in this survey have assured financing, although all are regarded as serious projects.

RAW MATERIALS CONSUMPTION

Producers of paper and paperboard report their consumption of all fibers at 87.9 million tons in 1992; this total is expected to rise by 11 million tons to 98.9 million tons in 1996, assuming full utilization of productive capacity. Primary fibers — derived from primary logs or wood chips from primary logs — accounted for 45.6% of the base year total, while reclaimed (secondary) fibers — including those derived from recovered paper and from pulp manufactured from wood residues generated in manufacturing and logging operations — comprised 54.4%. The ratio of primary to reclaimed fibers is expected to change during the time period of the survey. In 1996, primary fibers are estimated to make up 42.4% of the total consumed, while reclaimed fibers will increase to 57.6%. These changes clearly reflect the growing importance of recovered paper as furnish for a variety of paper and paperboard grades: specifically, the share of total fiber accounted for by recovered paper will rise from 30.1% in 1992 to 34.8% in 1996.

RECOVERED FIBER UTILIZATION

In 1993, recovered paper consumption for paper and paperboard manufacture is expected to reach 29.2 million tons, increasing to 34.4 million tons in 1996, assuming full utilization of productive capacity. At this level, recovered paper would comprise better than one-third of total fiber consumed by the industry. The four-year increase, 1992—1996, is projected at 7.9 million tons. This translates to an average annual rate of increase of 6.8%, twice the rate of growth in consumption for all fiber, and more than three times the rate of growth in papermaking capacity.

Looking forward, the fastest growth in recovered paper consumption will occur in the containerboard sector. Two new machines, one in a completely new mill, will be built between 1993 and 1995 to produce recycled corrugating medium, while six new machines, including five new mills, will supply recycled liner board. Overall, of the nearly eight million ton increase in recovered paper consumption between 1992 and 1996, 70% will consist of old newspapers and old corrugated containers, while 14.3% will consist of mixed papers. Utilization of old corrugated containers will experience the most rapid growth at 7.9% per year, followed by mixed papers at 7.3%.

Regional Capacity

Table 4 summarizes historical shifts in the geographical distribution of paper, paperboard and wood pulp capacity and shows the regional pattern of expected changes during the four years 1993 — 1996.

Between 1982 and 1992, the Southeast and South Central regions of the U.S. increased their combined share of paper and paperboard capacity from 51.9% to 54% and wood pulp capacity from 67.8% to a commanding 70.4%. The Northeast and North Central regional total share declined from 33.6% to 31.7% for paper and paperboard and from 15% to 14.6% for wood pulp. The Western region saw its share of paper and paperboard capacity fall slightly from 14.6% to 14.3%, while its share of the national wood pulp total declined more sharply, from 17.2% to 15%.

Over the four-year period ending in 1996, the South Central region will account for 38% of the national gain in paper and paperboard capacity, thereby increasing

TABLE 2:
ANNUAL CAPACITIES

Thousands short tons

	PAPER & PAPERBOARD			WOOD PULP		
YEAR	PERCENT INCREASE	CAPACITY ADDITIONS	ANNUAL CAPACITY	PERCENT INCREASE	CAPACITY ADDITIONS	ANNUAL CAPACITY
1970	—	—	53,260	—	—	43,505
1971	1.6	876	54,136	2.3	1,006	44,511
1972	3.2	1,737	55,873	2.3	1,029	45,540
1973	4.1	2,291	58,164	3.6	1,649	47,189
1974	2.3	1,363	59,527	0.9	448	47,637
1975	1.0	613	60,140	—	22	47,659
1976	1.9	1,167	61,307	2.3	1,100	48,759
1977	1.1	697	62,004	2.4	1,151	49,910
1978	1.8	1,087	63,091	(0.2)	(122)	49,788
1979	2.4	1,524	64,615	3.7	1,849	51,637
1980	2.7	1,753	66,368	3.1	1,578	53,215
1981	2.7	1,804	68,172	3.1	1,676	54,891
1982	2.8	1,914	70,086	2.2	1,234	56,125
1983	1.5	1,040	71,126	—	18	56,143
1984	2.8	1,972	73,098	2.8	1,599	57,742
1985	1.6	1,203	74,301	1.6	899	58,641
1986	2.0	1,476	75,777	1.9	1,109	59,750
1987	3.2	2,409	78,186	2.4	1,422	61,172
1988	3.0	2,347	80,533	2.9	1,778	62,950
1989	2.0	1,625	82,158	2.1	1,339	64,289
1990	2.7	2,235	84,393	1.7	1,078	65,367
1991	2.9	2,484	86,877	2.3	1,527	66,894
1992	3.0	2,589	89,466	1.8	1,207	68,101
1993E	1.8	1,581	91,047	(0.3)	(205)	67,896
1994E	2.0	1,813	92,860	0.7	472	68,368
1995E	1.9	1,775	94,635	1.2	832	68,728
1996E	1.8	1,713	96,348	1.0	681	69,049

E=estimate

TABLE 3:
PLANNED INCREASES IN RECOVERED PAPER CONSUMPTION 1992-1996

Thousands short tons

	TOTAL	MIXED PAPERS	NEWS-PAPERS	CORRU-GATED	PULP SUB-STITUTES	HIGH GRADE DEINKING
INCREASE IN ANNUAL CONSUMPTION	7,929	1,133	1,101	4,447	596	652
SHARE OF TOTAL INCREASE	100.0%	14.3%	13.9%	56.1%	7.5%	8.2%
AVERAGE ANNUAL GROWTH RATE	6.8%	7.3%	5.3%	7.9%	4.6%	5.6%

its already leading position. The Northeast and North Central regions will also increase their respective shares slightly. In wood pulp capacity, the Southeast and South Central regions will account for 77% of the expected increase.

NEWSPRINT

U.S. newsprint capacity will decline from 7.3 million annual tons in 1992 to 7.2 million tons this year and is expected to remain at that level over the three future years covered in this survey. No new mills or machines are planned during these years and capacity gains, resulting from rebuilds of existing machines and miscellaneous improvements, will be offset by the reallocation of capacity in several mills to produce groundwood and specialty papers. These reallocations of capacity, which are also occurring in Canadian mills, reflect producers' efforts to adjust to difficult market conditions and to maximize operating efficiency.

As previously reported, the investment resources of the industry have been concentrated on recycling rather than on capacity expansions and, over the last three years, eleven new deinking plants have been brought into operation in newsprint mills. These facilities permit fiber from old newspapers and magazines to be substituted for wood fiber and, added to the industry's existing plant, will recycle 2.9 million tons of recovered paper in 1993.

Recent reports released by the Canadian Pulp and Paper Association show that newsprint capacity in Canada is in a period of decline. Since 1989, Canadian producers have shut down 33 newsprint and uncoated groundwood machines with capacities totaling more than 1.6 million annual tons. Much of this loss has been offset by new capacity additions, but the current capacity estimate of 11.1 million tons in 1996 is 283,000 tons below capacity in place in 1991. Additional statistics on North American and world pulp and paper capacities are reported on pages 20 and 21 of this survey.

PRINTING AND WRITING PAPER

During the summer of 1993, the Printing and Writing Paper Division of AFPA undertook a comprehensive audit of its statistical programs for collecting, editing and reporting shipment data for printing and writing papers. This audit resulted in data revisions for several printing and writing product grades. A similar and coordinated audit of the AFPA Capacity Survey was conducted in the fall of this year. This capacity audit involved direct participation of senior management in reporting companies and emphasis was placed on definitions, including scheduled and unscheduled downtime, salable versus gross production, product classifications and comparisons of reported capacity with actual shipments. Results of the audit were incorporated into the capacity estimates reported in this survey for coated and uncoated papers.

Uncoated Free Sheet

Estimates of growth in capacity for uncoated free sheet papers are essentially unchanged from those reported last year. The start-up of a major new machine this year and three additional world-class machines scheduled to be brought on-line in 1994 and 1995 will contribute to a three year increase in capacity totaling 996,000 annual tons. Overall, capacity is estimated to increase from 13.6 million tons in 1993 to 14.5 million annual tons in 1996.

These additions to capacity for this largest and fastest-growing paper category will expand the capacity base at a 2.4% average annual rate of increase. Over the preceding ten-year period, 1983 — 1993, capacity increased at a higher 3.8% annual rate.

Uncoated Groundwood Papers

Capacity for uncoated groundwood papers is estimated to increase at a rate averaging 1.1% per year to reach 1.9 million tons in 1996. The unanticipated shut down of a paper machine, together with swings to other grades, more than offset increased allocation of machine time from newsprint production resulting in somewhat lower capacity levels than estimated in our survey last year.

TABLE 4:
REGIONAL CAPACITY DISTRIBUTION— PERCENT OF TOTAL

	PAPER & PAPERBOARD			WOOD PULP		
	SHARE OF U.S. TOTAL		SHARE OF CAPACITY INCREASE	SHARE OF U.S. TOTAL		SHARE OF CAPACITY INCREASE
REGIONS	1982	1992	1993-1996*	1982	1992	1993-1996*
NORTHEAST	16.0	13.4	14.4	8.2	7.1	12.8
NORTH CENTRAL	17.6	18.3	20.6	6.8	7.5	2.8
SOUTHEAST	24.2	24.5	16.3	31.6	32.2	43.3
SOUTH CENTRAL	27.7	29.5	38.0	36.2	38.2	33.7
WEST	14.6	14.3	10.7	17.2	15.0	7.4

* *Four Year Increase*

TABLE 5:
FIBER SOURCES FOR PAPER & PAPERBOARD MANUFACTURE

Thousands short tons

GRADES	1992 ANNUAL TONS	1992 PERCENT	1993 ANNUAL TONS	1994 ANNUAL TONS	1995 ANNUAL TONS	1996 ANNUAL TONS	1996 PERCENT	AVERAGE ANNUAL GROWTH 1993-1996*
TOTAL CONSUMPTION	**87,915**	**100.0**	**90,585**	**95,106**	**97,194**	**98,905**	**100.0**	**3.0**
PRIMARY MATERIALS								
WOOD PULP FROM PRIMARY FIBERS	**40,120**	**45.6**	**40,512**	**41,507**	**41,769**	**41,922**	**42.4**	**1.1**
RECLAIMED MATERIALS	**47,795**	**54.4**	**50,073**	**53,599**	**55,425**	**56,983**	**57.6**	**4.5**
WOOD PULP FROM:								
RECLAIMED FIBERS	21,142	24.1	20,717	22,189	22,281	22,364	22.6	1.4
RECOVERED PAPER†	26,476	30.1	29,169	31,199	32,931	34,405	34.8	6.8
OTHER	177	0.2	187	211	213	214	0.2	4.9

Note: Consumption for 1994-1996 assumes capacity levels of production * *Four Year Increase*

† *Includes tonnage consumed in the manufacture of molded pulp products ranging from 295,000 tons in 1992 to 313,000 tons in 1996.*

Coated Papers

Capacities for coated groundwood and coated free sheet papers in 1993 show upward revisions from year-earlier estimates. Capacity for coated groundwood grades is now expected to reach 4.7 million annual tons this year, 171,000 tons above last year's estimate, while capacity for free sheet grades is estimated at 4.4 million annual tons, or 55,000 tons higher than reported last year. This pickup in base year capacity will not be sustained in future years and no new paper machines or major expansions projects for either grade are planned over the next three years.

Capacity for coated groundwood papers is estimated to increase by 177,000 annual tons to reach a level of 4.9 million annual tons in 1996. Capacity for coated free sheet should increase by 238,000 annual tons to reach 4.6 million tons in that year. These expansion plans follow a ten-year period of strong growth in which the average annual rates of increase in capacity for both grades was more than twice those now planned.

Tissue Papers

Back-to-back capacity increases of 2.7% and 1.9% in 1992 and 1993 will bring the industry potential to produce tissue products to 6.5 million annual tons this year. During the upcoming three years, growth in capacity is expected to average a 1.9% annual rate of increase and total capacity is estimated to increase by 382,000 annual tons to reach 6.9 million tons in 1996.

Rebuilds of existing tissue machines, restarts of idle mills and other improvements to facilities now in operation, will provide 52%, or 197,000 tons, of new capacity, while new mills or machines will provide the remaining 48%, or 185,000 tons. In recent years, new machines have accounted for up to 70% of all new tissue capacity.

Tissue companies also report plans to expand consumption of recovered paper to a four million ton annual level over the next three years and to maintain their major recycling effort. Between 1994 and 1996, tissue producers expect to recycle more than one-third of all recovered paper consumed in the paper segment of the pulp and paper industry.

Unbleached Kraft Packaging Papers

A long-term decline in markets for packaging papers, described in detail in previous capacity reports, has caused producers to reduce capacity for these products by 34% over a ten-year period from 1983 to 1993. Despite a temporary uptick in capacity reported in 1991, as several companies attempted to enter the recycled paper bag segment of the industry, capacity for total unbleached packaging paper appears to have stabilized at approximately 2.7 million annual tons.

Although no new capacity additions are planned during the years 1994 — 1996, producers can respond to changes in demand by adjusting the product mix on swing machines that can produce either packaging paper or light weight linerboard.

TABLE 6:
CONTAINERBOARD CAPACITY

Thousands short tons

PRODUCT GRADES	1993 CAPACITY ANNUAL TONS	1993 CAPACITY SHARE OF TOTAL	1994-1996 THREE-YEAR INCREASE ANNUAL TONS	1994-1996 THREE-YEAR INCREASE SHARE OF TOTAL
Linerboard	**22,509**	**100.0%**	**1,591**	**100.0%**
Unbleached Kraft	20,775	92.3	527	33.1
Solid Bleached	177	0.8	6	0.4
Recycled	1,557	6.9	1,058	66.5
Corrugating Medium	**8,625**	**100.0%**	**476**	**100.0%**
Semichemical	5,908	68.5	109	22.9
Recycled	2,717	31.5	367	77.1

PAPERBOARD GRADES

Containerboard

Table 6 shows that producers plan to expand capacity for recycled linerboard and recycled corrugating medium at significantly faster rates of increase than planned for their companion grades, kraft linerboard and semichemical medium, manufactured mostly from virgin fiber. While capacity for containerboard as a whole is reported to expand at a comparatively modest 2.2% average annual rate over the three-year period 1994 — 1996, recycled grades are expected to expand at a 10.1% annual rate and to account for almost 70% of the total anticipated gain of 2.1 million annual tons. Capacity for

recycled linerboard, in particular, with six scheduled new machine installations and with sizable residual gains from recently installed machines, will grow by almost 19% per year, or 1.1 million tons, to reach an annual production level of 2.6 million tons in 1996. The heavy emphasis on recycling in the containerboard industry is contributing to increased use of recovered paper in the manufacture of packaging products. As reported in detail on page 26 of this survey, consumption of recovered paper in this industry segment is estimated to expand from 10.4 million tons in 1993 to 13 million tons in 1996, if market conditions support full utilization of productive capacity.

Solid Bleached Packaging Paperboard

The start-up late this year of a new 220,000 ton-per-year paper machine will end a six-year slow-growth period in which capacity for solid bleached paperboard increased by only 224,000 annual tons, a rate of only 0.8% per year. Output from this machine, augmented by a second new machine scheduled to be brought on-line in 1995, will contribute to capacity gains totaling 639,000 annual tons and will enable the industry to produce at a 5.6 million ton annual rate in 1996.

Recycled Paperboard (other than Containerboard)

Almost 80% of recycled paperboard is dedicated to the production of "folding", a packaging grade, or "other", a category of grades including tube, can and drum stock, and other nonpackaging products. These two grades will provide virtually all of the increase in capacity over the next three years, now estimated to total 285,000 annual tons. Capacity for recycled paperboard for folding cartons will increase by 179,000 tons to reach a level of 3.2 million annual tons in 1996, while capacity for "other" grades will increase by 92,000 tons to 3.1 million annual tons in that year.

Consumption of recovered paper utilized in the production of recycled paperboard reached 7.6 million tons this year and accounted for approximately one-fourth of total pulp and paper industry consumption.

WOOD PULP

Sulfate, Mechanical and Semichemical Pulps

Rapid and widespread growth in recycling and increasing substitution of recovered paper for virgin fiber in the manufacture of paper and paperboard is causing fundamental changes in the U.S. wood pulp industry. Examples of these changes are evident in this survey report, with capacity for paper and paperboard estimated to increase by 5.3 million annual tons by 1996, while plans for additions to wood pulp capacity over the same period total only 1.2 million annual tons. The fiber deficit implied by these disparate increases will be met by increased use of recovered paper and, by 1996, wood pulp will decline to 65% of total fiber for papermaking, from 75% in 1986.

Cutbacks in expansion will affect each of the major wood pulp grades during the 1994-1996 period. No increases in capacity are reported for unbleached sulfate pulp, used mostly in containerboard manufacture, or for thermomechanical, refiner or groundwood pulps, the basic raw materials for newsprint and groundwood papers. Capacity for bleached sulfate pulps, used mostly in printing and writing paper and in food packaging products, is expected to increase by a comparatively modest 1.2 million annual tons to reach a potential for 31.7 million tons in 1996. This rate of increase averages only 1.2% per year, or less than one-third the 3.7% average for these pulps over the preceding ten years.

Sulfite Pulp

No greenfield sulfite pulp mills have been built in the U.S. during the last twenty years and uneconomic mills have been shut down or replaced with alternative pulping systems. This shutdown capacity, including the permanent closure of a mill in the Pacific Northwest in 1992, has reduced capacity for sulfite pulp by more than 60% since 1973.

Capacity still in active use is reported at 1.4 million annual tons in 1993, 137,000 tons lower than last year's estimate. While no changes are reported through 1996, the out-year in the survey, the possibility of further capacity withdrawals can not be discounted.

Dissolving and Special Alpha Pulps

Capacity for the production of dissolving and special alpha pulps has been virtually static over the past ten years and is reported to remain at 1.5 million annual tons during the three future years 1994-1996. This projection, however, masks extremely difficult market conditions for these high quality pulps, which have contributed to the indefinite closure of a 225,000 ton-per-year mill in Alaska late this year, and which impose severe economic strains on other producers.

Under the ground rules for this survey, the shutdown of the Alaskan mill will be reflected in next year's capacity estimates. These rules require that the capacity of permanently idled facilities, or facilities that have been idle for one year with no prospect of resumed operation, be removed from capacity estimates, since they no longer overhang the market.

Market Pulps

Three new market pulp mills, brought into production in 1991 and 1992, resulted in an 853,000 annual ton capacity increase for bleached sulfate market pulps in 1992, and brought industry capacity to 9 million annual tons. This strong 10.7% one-year increase followed a ten-year period of rapid and sustained growth in which capacity increased at a compound rate of 5.8% per year and bleached sulfate pulps gained a dominant 82% share of total capacity of all market wood pulps. It is now clear that this growth cycle ended in 1992.

Despite a major addition to capacity, reflecting a change in mill ownership, net capacity for bleached sulfate market pulp declined by 32,000 annual tons in 1993, and is reported to decline by a further 160,000 annual tons by 1996. These capacity losses, which result from idled mills and from integration of market pulp to on-site papermaking, could increase if curtailed or marginal facilities are permanently idled.

Continuing a trend reported in our survey last year, market pulp manufactured from recovered paper is gaining industry-wide acceptance, and capacity to produce these pulps is expanding at a rapid rate. From a potential for 424,000 tons per year in 1992, respondents to this survey report plans to expand capacity to 1.7 million tons per year in 1996.

CAPACITY SUMMARY ANNUAL

Practical Maximum Basis
Thousands short tons

GRADES	1992	1993	1994	1995	1996*
TOTAL ALL GRADES	**91,627**	**93,230**	**95,048**	**96,823**	**98,536**
TOTAL PAPER & PAPERBOARD	**89,466**	**91,047**	**92,860**	**94,635**	**96,348**
TOTAL PAPER	**44,984**	**45,482**	**46,386**	**47,051**	**47,469**
NEWSPRINT	7,303	7,221	7,233	7,216	7,229
PRINTING & WRITING	25,846	26,390	27,086	27,599	27,886
Uncoated Groundwood	1,868	1,883	1,932	1,943	1,943
Coated Groundwood	4,587	4,707	4,757	4,845	4,884
Coated Free Sheet	4,218	4,378	4,477	4,564	4,616
Uncoated Free Sheet	13,363	13,551	14,030	14,352	14,547
Cotton Fiber	197	203	206	209	209
Thin Papers	254	255	260	260	260
Solid Bleached Bristols	1,359	1,413	1,424	1,426	1,427
PACKAGING & IND. CONV.	5,422	5,339	5,386	5,417	5,440
Unbleached Kraft	2,737	2,661	2,686	2,725	2,742
Bleached Packaging & Ind. Conv.	507	513	513	514	514
Specialty Packaging	724	707	708	708	708
Special Industrial	1,454	1,458	1,461	1,470	1,476
TISSUE	6,413	6,532	6,699	6,819	6,914
TOTAL PAPERBOARD	**44,482**	**45,565**	**46,474**	**47,584**	**48,879**
UNBLEACHED KRAFT	22,550	22,708	22,907	23,130	23,564
of which Kraft Linerboard	20,692	20,775	20,842	20,933	21,302
SOLID BLEACHED	4,947	4,959	5,201	5,371	5,598
SEMICHEMICAL	5,817	5,908	5,928	5,955	6,017
RECYCLED	11,168	11,990	12,438	13,128	13,700
of which Containerboard	3,523	4,274	4,621	5,192	5,699
CONSTRUCTION PAPER & BOARD	**2,161**	**2,183**	**2,188**	**2,188**	**2,188**

Totals not adjusted for differences in rounding.

* *Capacity additions presented here for 1996 include only presently known commitments and do not necessarily represent final expansion plans of the industry for that year.*

CAPACITY REDUCTIONS

Shutdowns represent machines and mills reported to the AFPA as permanent or indefinite closures and have been removed from capacity totals. Not all of the facilities have been dismantled and some portion of their productive capacity could be restored.

* *Includes machines converted to produce other grades.*

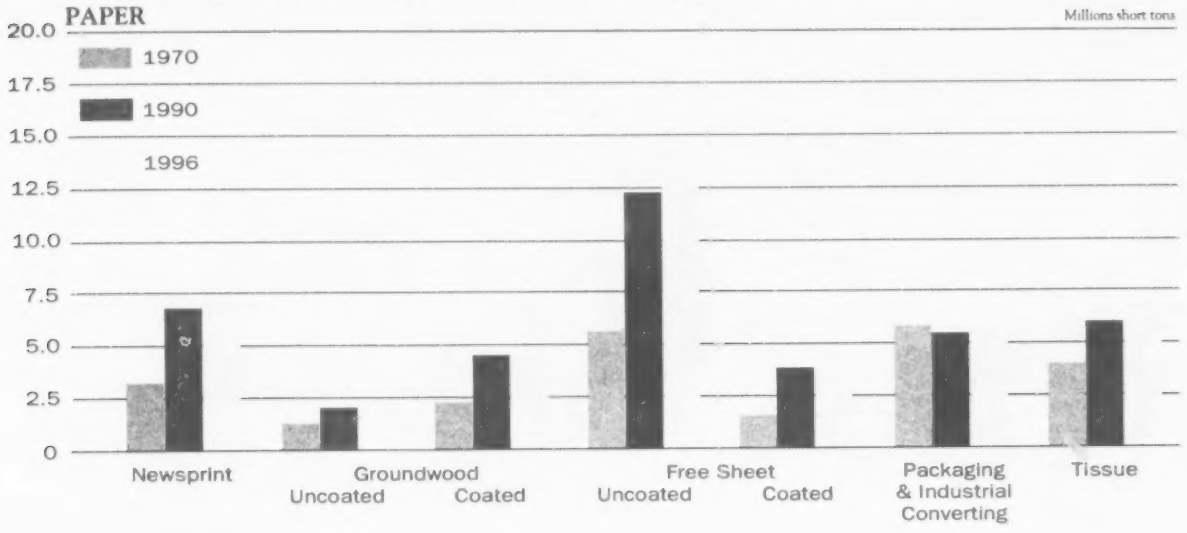
PAPER & PAPERBOARD MILLS & MACHINES SHUT DOWN

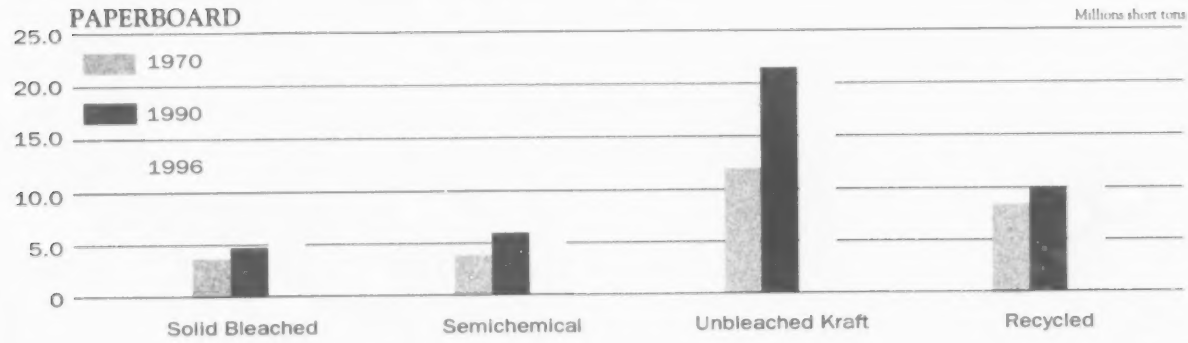
1971 - 1980

GRADES	NUMBER OF MACHINES	NUMBER OF COMPLETE MILLS	ANNUAL CAPACITY
TOTAL	**298**	**92**	**6,472**
Paper			
Newsprint	3	1	231
Printing & Writing	83	13	1,353
Packaging & Ind. Conv.	67	15	685
Tissue	31	12	298
Paperboard			
Unbleached Kraft	4	1	528
Solid Bleached	3	1	195
Semichemical	7	2	301
Recycled	64	26	2,167
Construction Paper & Board	36	21	714

Totals not adjusted for rounding differences.

CAPACITY/ANNUAL GROWTH COMPARISON





Thousands short tons

	1981 - 1990*			1991 - 1996* ANNUAL CAPACITY			
GRADES	NUMBER OF MACHINES	NUMBER OF COMPLETE MILLS	ANNUAL CAPACITY	NUMBER OF MACHINES	NUMBER OF COMPLETE MILLS	REMOVED FROM SURVEY	NOT REMOVED FROM SURVEY
TOTAL	**306**	**111**	**8,747**	**50**	**7**	**2,279**	**211**
Paper							
Newsprint	5	—	360	1	—	68	—
Printing & Writing	73	10	1,497	15	2	368	148
Pkg. & Ind. Conv.	44	11	1,228	5	1	169	—
Tissue	46	18	469	18	3	160	33
Paperboard							
Unbleached Kraft	7	—	1,127	4	—	1,055	—
Solid Bleached	2	—	142	—	—	—	—
Semichemical	11	2	1,008	2	—	297	—
Recycled	24	15	762	5	1	162	30
Construction Paper & Board	94	55	2,154	—	—	—	—

CAPACITY SUMMARY ANNUAL

Practical Maximum Basis
Thousands short tons

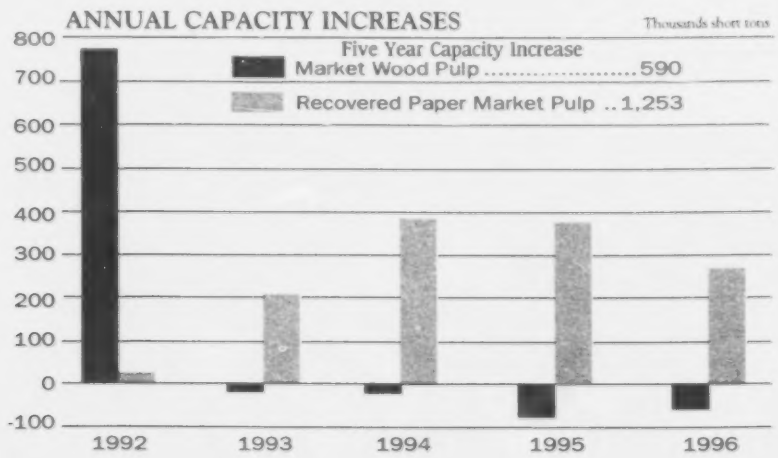
GRADES	1992	1993	1994	1995	1996*
Total All Grades Wood Pulp	**68,700**	**68,485**	**68,955**	**69,315**	**69,636**
TOTAL WOOD PULP FOR PAPER & BOARD	**68,101**	**67,896**	**68,368**	**68,728**	**69,049**
DISSOLVING	1,460	1,469	1,470	1,470	1,470
CHEMICAL PAPER GRADES	55,053	54,877	55,401	55,732	56,049
SULFITE PAPER GRADES	1,511	1,449	1,445	1,447	1,449
SULFATE PAPER GRADES	53,542	53,428	53,956	54,285	54,600
Bleached Softwood	15,401	15,239	15,363	15,581	15,815
Bleached Hardwood	14,946	15,272	15,680	15,813	15,850
Unbleached	23,195	22,917	22,913	22,891	22,935
SEMICHEMICAL	4,509	4,494	4,499	4,499	4,500
MECHANICAL	7,074	7,051	6,993	7,022	7,025
SCREENINGS	5	5	5	5	5
Wood Pulp for Construction Paper & Board†	**599**	**589**	**587**	**587**	**587**
TOTAL MACHINE DRIED WOOD PULP	**12,589**	**12,372**	**12,364**	**12,290**	**12,232**
DISSOLVING	1,460	1,469	1,470	1,470	1,470
CHEMICAL PAPER GRADES	11,129	10,903	10,894	10,820	10,762
SULFITE PAPER GRADES	396	398	398	398	398
SULFATE PAPER GRADES	10,733	10,505	10,496	10,422	10,364
Bleached Softwood	6,149	5,963	5,934	5,863	5,812
Bleached Hardwood	4,403	4,362	4,382	4,379	4,372
Unbleached	181	180	180	180	180

Totals not adjusted for differences in rounding.

† *Excludes the defibrated/exploded pulp capacity of mills that produce hard pressed board.*

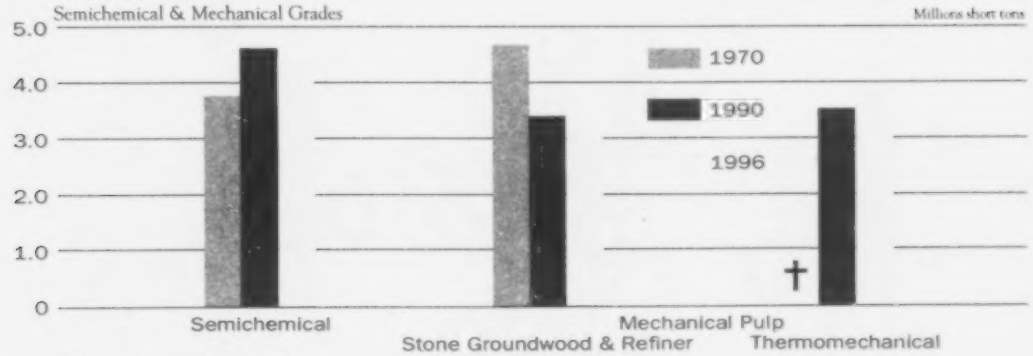
* *Capacity additions presented here for 1996 include only presently known commitments and do not necessarily represent final expansion plans of the industry for that year.*

MARKET WOOD PULP & RECOVERED PAPER MARKET PULP



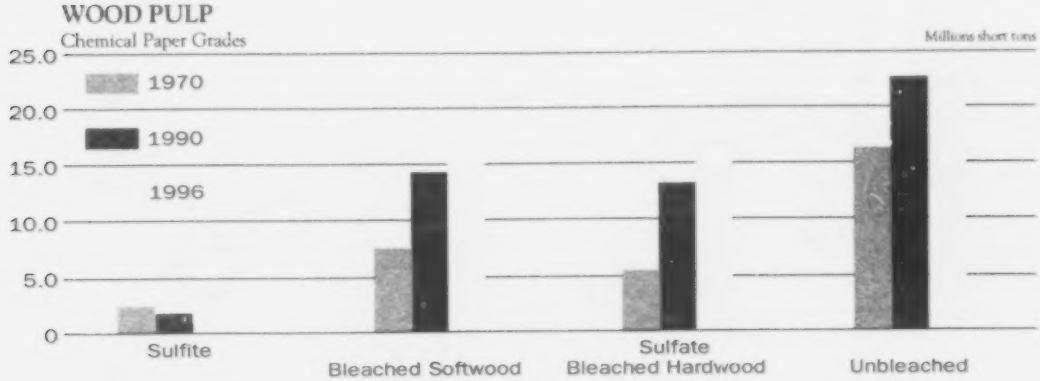
CAPACITY/ANNUAL GROWTH COMPARISON

WOOD PULP



† *TMP capacity introduced in 1975*

WOOD PULP



MARKET PULP

MARKET WOOD PULP

Practical Maximum Basis
Thousands short tons

GRADES	1992	1993	1994	1995	1996*
TOTAL MARKET WOOD PULP	**10,740**	**10,720**	**10,695**	**10,619**	**10,561**
DISSOLVING	1,460	1,469	1,470	1,470	1,470
CHEMICAL PAPER GRADES	9,280	9,251	9,225	9,149	9,091
SULFITE PAPER GRADES	253	257	257	257	257
SULFATE PAPER GRADES	9,027	8,994	8,968	8,892	8,834
Bleached Softwood	5,301	5,229	5,206	5,133	5,082
Bleached Hardwood	3,545	3,585	3,582	3,579	3,572
Unbleached	181	180	180	180	180

RECOVERED PAPER MARKET PULP

	1992	1993	1994	1995	1996*
RECOVERED PAPER MARKET PULP	**424**	**630**	**1,013**	**1,386**	**1,652**

* *Capacity additions presented here for 1996 include only presently known commitments and do not necessarily represent final expansion plans of the industry for that year.*

CAPACITY SUMMARY ANNUAL

Based on information provided by producers. Reflects diversion of drying capacity to and from own use, installation of new equipment and retirement of existing equipment. Expansion projects for market wood pulp are reported as firm commitments. Some expansions for recovered paper market pulp do not have assured financing, although all are reported as serious projects.

CAPACITY/ANNUAL • YEAR END • DAILY

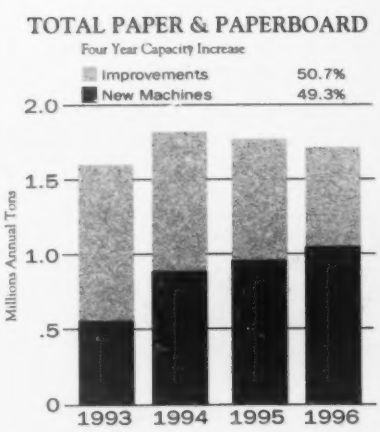
	ALL GRADES PAPER & PAPER-BOARD	PAPER & PAPER-BOARD		PRACTICAL MAXIMUM BASIS	PAPER	NEWS-PRINT	PRINTING & WRITING				
	TOTAL	TOTAL		THOUSANDS SHORT TONS	TOTAL	TOTAL	TOTAL	UNCOATED GROUND-WOOD	COATED GROUND-WOOD	COATED FREE SHEET	UNCOATED FREE SHEET
ANNUAL 1992-1996	**91,627**	**89,466**	**1992**	**Annual Capacity**	**44,984**	**7,303**	**25,846**	**1,868**	**4,587**	**4,218**	**13,363**
Annual Capacity includes changes in capacity only for the portion of the year in which they are actually effective	554	554		New Machines	311	25	175	-	-	65	108
	1,049	1,027		Net Improvements	187	(107)	369	15	120	95	80
	93,230	**91,047**	**1993**	**Annual Capacity**	**45,482**	**7,221**	**26,390**	**1,883**	**4,707**	**4,378**	**13,551**
	882	882		New Machines	464	-	352	-	-	-	341
	936	931		Net Improvements	440	12	344	49	50	99	138
	95,048	**92,860**	**1994**	**Annual Capacity**	**46,386**	**7,233**	**27,086**	**1,932**	**4,757**	**4,477**	**14,030**
	932	932		New Machines	304	-	259	-	-	-	256
	843	843		Net Improvements	361	(17)	254	11	88	87	66
	96,823	**94,635**	**1995**	**Annual Capacity**	**47,051**	**7,216**	**27,599**	**1,943**	**4,845**	**4,564**	**14,352**
	1,037	1,037		New Machines	206	-	152	-	-	-	152
	676	676		Net Improvements	212	13	135	-	39	52	43
	98,536	**96,348**	**1996***	**Annual Capacity**	**47,469**	**7,229**	**27,886**	**1,943**	**4,884**	**4,616**	**14,547**
YEAR END CAPACITY 1992-1996	**92,274**	**90,099**	**1992**	**Year End Capacity**	**45,099**	**7,345**	**25,980**	**1,812**	**4,627**	**4,280**	**13,392**
Year End Capacity is calculated by multiplying Daily Rate by number of Available Days	602	602		New Machines	325	-	212	-	-	-	201
	1,024	1,011		Net Improvements	394	(128)	467	91	84	108	172
	93,900	**91,712**	**1993**	**Year End Capacity**	**45,818**	**7,217**	**26,659**	**1,903**	**4,711**	**4,388**	**13,765**
	861	861		New Machines	402	-	322	-	-	-	318
	921	921		Net Improvements	409	(26)	331	31	119	127	56
	95,682	**93,494**	**1994**	**Year End Capacity**	**46,629**	**7,191**	**27,312**	**1,934**	**4,830**	**4,515**	**14,139**
	1,278	1,278		New Machines	389	-	313	-	-	-	313
	770	770		Net Improvements	334	29	175	9	34	67	63
	97,730	**95,542**	**1995**	**Year End Capacity**	**47,352**	**7,220**	**27,800**	**1,943**	**4,864**	**4,582**	**14,515**
	497	497		New Machines	-	-	-	-	-	-	-
	567	567		Net Improvements	178	17	134	-	42	48	44
	98,794	**96,606**	**1996***	**Year End Capacity**	**47,530**	**7,237**	**27,934**	**1,943**	**4,906**	**4,630**	**14,559**
YEAR END DAILY RATE 1992-1996	356	357	**1992**	Available Days	358	362	359	358	359	360	359
	259.33	**252.53**		**Daily Rate**	**125.91**	**20.27**	**72.44**	**5.06**	**12.90**	**11.89**	**37.30**
	356	357	**1993**	Available Days	358	361	359	359	359	360	359
	264.00	**257.16**		**Daily Rate**	**127.98**	**20.01**	**74.31**	**5.31**	**13.11**	**12.19**	**38.35**
	356	357	**1994**	Available Days	358	361	359	359	360	360	359
	269.00	**262.16**		**Daily Rate**	**130.24**	**19.94**	**76.12**	**5.39**	**13.43**	**12.54**	**39.39**
	356	357	**1995**	Available Days	358	361	359	359	360	360	359
	274.69	**267.85**		**Daily Rate**	**132.26**	**20.02**	**77.48**	**5.42**	**13.53**	**12.73**	**40.43**
	356	357	**1996***	Available Days	358	361	359	359	360	360	359
	277.65	**270.81**		**Daily Rate**	**132.76**	**20.07**	**77.85**	**5.42**	**13.64**	**12.86**	**40.56**

* *Capacity additions presented here for 1996 include only presently known commitments and do not necessarily represent final expansion plans for the industry for that year.*

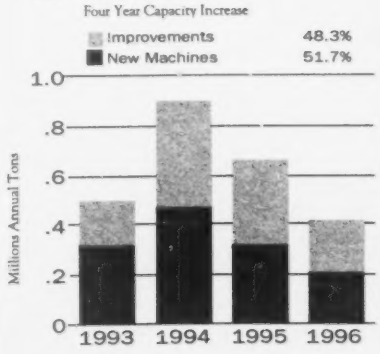
Totals not adjusted for differences in rounding

			PACKAGING & INDUSTRIAL CONVERTING					
COTTON FIBER	THIN PAPERS	SOLID BLEACHED BRISTOLS	TOTAL	UNBLEACHED KRAFT	BLEACHED PACKAGING & INDUSTRIAL CONVERTING	SPECIALTY PACKAGING	SPECIAL INDUSTRIAL	TISSUE TOTAL
197	**254**	**1,359**	**5,422**	**2,737**	**507**	**724**	**1,454**	**6,413**
1	1	-	3	-	-	3	-	108
5	-	54	(86)	(76)	6	(20)	4	11
203	**255**	**1,413**	**5,339**	**2,661**	**513**	**707**	**1,458**	**6,532**
1	10	-	9	9	-	-	-	103
2	(5)	11	20	16	-	1	3	64
206	**260**	**1,424**	**5,356**	**2,686**	**513**	**708**	**1,461**	**6,699**
3	-	-	15	15	-	-	-	30
-	-	2	34	24	1	-	9	90
209	**260**	**1,426**	**5,417**	**2,725**	**514**	**708**	**1,470**	**6,819**
-	-	-	2	2	-	-	-	52
-	-	1	21	15	-	-	6	43
209	**260**	**1,427**	**5,440**	**2,742**	**514**	**708**	**1,476**	**6,914**
201	**255**	**1,413**	**5,326**	**2,648**	**514**	**706**	**1,460**	**6,448**
-	11	-	-	-	-	-	-	113
4	(6)	14	16	16	(1)	2	(1)	39
205	**260**	**1,427**	**5,342**	**2,662**	**513**	**708**	**1,459**	**6,600**
4	-	-	18	18	-	-	-	62
-	-	(2)	30	24	1	-	5	74
209	**260**	**1,425**	**5,390**	**2,704**	**514**	**708**	**1,464**	**6,736**
-	-	-	9	9	-	-	-	67
-	-	2	38	27	-	-	11	92
209	**260**	**1,427**	**5,437**	**2,740**	**514**	**708**	**1,475**	**6,895**
-	-	-	-	-	-	-	-	-
-	-	-	6	5	-	-	1	21
209	**260**	**1,427**	**5,443**	**2,745**	**514**	**708**	**1,476**	**6,916**
321	339	361	352	354	355	354	347	357
0.63	**0.75**	**3.91**	**15.11**	**7.47**	**1.45**	**1.99**	**4.21**	**18.09**
322	339	361	353	355	354	354	347	357
0.64	**0.77**	**3.95**	**15.15**	**7.50**	**1.45**	**2.00**	**4.21**	**18.51**
323	339	361	353	355	354	354	347	357
0.65	**0.77**	**3.95**	**15.29**	**7.62**	**1.45**	**2.00**	**4.22**	**18.89**
323	339	361	353	355	354	354	347	356
0.65	**0.77**	**3.95**	**15.42**	**7.72**	**1.45**	**2.00**	**4.26**	**19.34**
323	339	361	353	355	354	354	347	356
0.65	**0.77**	**3.95**	**15.44**	**7.73**	**1.45**	**2.00**	**4.26**	**19.40**

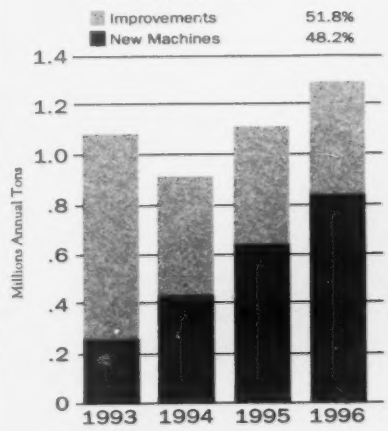
TOTAL PAPER & PAPERBOARD



TOTAL PAPER



TOTAL PAPERBOARD



CAPACITY/ANNUAL • YEAR END • DAILY

			PAPER-BOARD	UNBLEACHED KRAFT PAPERBOARD				SOLID BLEACHED PACKAGING PAPERE			
		PRACTICAL MAXIMUM BASIS THOUSANDS SHORT TONS	TOTAL	TOTAL	LINER-BOARD	FOLDING	OTHER	TOTAL	LINER-BOARD	FOLDING	MILK CARTO & FOOD SERVIC
ANNUAL CAPACITY 1992-1996	**1992**	**Annual Capacity**	**44,482**	**22,550**	**20,692**	**1,391**	**467**	**4,947**	**186**	**2,436**	**2,038**
Annual Capacity includes changes in capacity only for the portion of the year in which they are actually effective		New Machines	243	–	–	–	–	50	–	50	–
		Net Improvements	840	158	83	62	13	(38)	(9)	48	(59)
	1993	**Annual Capacity**	**45,565**	**22,708**	**20,775**	**1,453**	**480**	**4,959**	**177**	**2,534**	**1,979**
		New Machines	418	–	–	–	–	149	–	149	–
		Net Improvements	491	199	67	129	3	93	5	23	64
	1994	**Annual Capacity**	**46,479**	**22,907**	**20,842**	**1,582**	**483**	**5,201**	**182**	**2,706**	**2,043**
		New Machines	628	176	176	–	–	67	–	43	24
		Net Improvements	482	47	(85)	132	–	103	–	26	83
	1995	**Annual Capacity**	**47,584**	**23,130**	**20,933**	**1,714**	**483**	**5,371**	**182**	**2,775**	**2,150**
		New Machines	831	338	338	–	–	138	–	69	69
		Net Improvements	464	96	31	65	–	89	1	38	53
	1996*	**Annual Capacity**	**48,879**	**23,564**	**21,302**	**1,779**	**483**	**5,598**	**183**	**2,882**	**2,272**
YEAR END CAPACITY 1992-1996	**1992**	**Year End Capacity**	**45,000**	**22,609**	**20,723**	**1,404**	**482**	**4,888**	**172**	**2,455**	**1,984**
		New Machines	277	–	–	–	–	145	–	145	–
		Net Improvements	617	191	100	93	(2)	32	10	42	(13)
Year End Capacity is calculated by multiplying Daily Rate by number of Available Days	**1993**	**Year End Capacity**	**45,894**	**22,800**	**20,823**	**1,497**	**480**	**5,065**	**182**	**2,642**	**1,971**
		New Machines	459	–	–	–	–	73	–	73	–
		Net Improvements	512	154	18	133	3	130	–	10	120
	1994	**Year End Capacity**	**46,865**	**22,954**	**20,841**	**1,630**	**483**	**5,268**	**182**	**2,725**	**2,091**
		New Machines	889	265	265	–	–	146	–	73	73
		Net Improvements	436	(39)	(136)	97	–	103	1	46	62
	1995	**Year End Capacity**	**48,190**	**23,180**	**20,970**	**1,727**	**483**	**5,517**	**183**	**2,844**	**2,226**
		New Machines	497	326	326	–	–	54	–	27	27
		Net Improvements	389	147	91	56	–	53	–	25	32
	1996*	**Year End Capacity**	**49,076**	**23,653**	**21,387**	**1,783**	**483**	**5,624**	**183**	**2,896**	**2,285**
YEAR END DAILY RATE 1992-1996	**1992**	Available Days	355	358	358	356	360	361	360	361	361
		Daily Rate	**126.62**	**63.20**	**57.93**	**3.94**	**1.34**	**13.55**	**0.48**	**6.80**	**5.50**
	1993	Available Days	355	357	357	357	359	361	361	361	361
		Daily Rate	**129.18**	**63.88**	**58.35**	**4.19**	**1.34**	**14.03**	**0.50**	**7.32**	**5.46**
	1994	Available Days	355	357	357	357	359	361	361	361	361
		Daily Rate	**131.92**	**64.31**	**58.40**	**4.56**	**1.35**	**14.60**	**0.50**	**7.55**	**5.79**
	1995	Available Days	355	357	357	357	359	361	361	361	361
		Daily Rate	**135.59**	**64.92**	**58.74**	**4.84**	**1.35**	**15.28**	**0.51**	**7.88**	**6.16**
	1996*	Available Days	355	357	357	357	359	361	361	361	361
		Daily Rate	**138.05**	**66.24**	**59.90**	**5.00**	**1.35**	**15.58**	**0.51**	**8.02**	**6.33**

* *Capacity additions presented here for 1996 include only presently known commitments and do not necessarily represent final expansion plans of the industry for that year.*

Totals not adjusted for differences in rounding

ARD	SEMI-CHEMICAL PAPERBOARD	RECYCLED PAPERBOARD							CONSTRUCTION PAPER & BOARD & WET MACHINE BOARD			
OTHER	TOTAL	TOTAL	LINER-BOARD	CORRU-GATING MEDIUM**	FOLDING	SET-UP	GYPSUM WALL BOARD FACING	OTHER	TOTAL	CONSTRUC-TION PAPER	WET MACHINE BOARD	INSU-LATING BOARD
287	**5,817**	**11,168**	**1,000**	**2,523**	**2,934**	**335**	**1,409**	**2,967**	**2,161**	**908**	**115**	**1,138**
–	–	193	168	25	–	–	–	–	–	–	–	–
(18)	91	629	389	169	62	(5)	8	6	22	17	2	3
269	**5,908**	**11,990**	**1,557**	**2,717**	**2,996**	**330**	**1,417**	**2,973**	**2,183**	**925**	**117**	**1,141**
–	–	269	214	55	–	–	–	–	–	–	–	–
1	20	179	37	41	49	6	2	44	5	5	–	–
270	**5,928**	**12,438**	**1,808**	**2,813**	**3,045**	**336**	**1,419**	**3,017**	**2,188**	**930**	**117**	**1,141**
–	–	385	288	97	–	–	–	–	–	–	–	–
(6)	27	305	170	16	81	1	2	35	–	–	–	–
264	**5,955**	**13,128**	**2,266**	**2,926**	**3,126**	**337**	**1,421**	**3,052**	**2,188**	**930**	**117**	**1,141**
–	–	355	213	142	–	–	–	–	–	–	–	–
(3)	62	217	136	16	49	2	1	13	–	–	–	–
261	**6,017**	**13,700**	**2,615**	**3,084**	**3,175**	**339**	**1,422**	**3,065**	**2,188**	**930**	**117**	**1,141**
277	**5,889**	**11,614**	**1,298**	**2,618**	**2,973**	**325**	**1,425**	**2,975**	**2,175**	**919**	**115**	**1,141**
–	–	132	63	69	–	–	–	–	–	–	–	–
(7)	30	364	233	123	12	9	(7)	(6)	13	11	2	–
270	**5,919**	**12,110**	**1,594**	**2,810**	**2,985**	**334**	**1,418**	**2,969**	**2,188**	**930**	**117**	**1,141**
–	–	386	386	–	–	–	–	–	–	–	–	–
–	11	217	47	5	86	3	2	74	–	–	–	–
270	**5,930**	**12,713**	**2,027**	**2,815**	**3,071**	**337**	**1,420**	**3,043**	**2,188**	**930**	**117**	**1,141**
–	–	478	285	193	–	–	–	–	–	–	–	–
(6)	35	337	204	26	86	1	2	18	–	–	–	–
264	**5,965**	**13,528**	**2,516**	**3,034**	**3,157**	**338**	**1,422**	**3,061**	**2,188**	**930**	**117**	**1,141**
–	–	117	54	63	–	–	–	–	–	–	–	–
(4)	63	126	78	6	29	2	–	11	–	–	–	–
260	**6,028**	**13,771**	**2,648**	**3,103**	**3,186**	**340**	**1,422**	**3,072**	**2,188**	**930**	**117**	**1,141**
361	357	348	359	349	348	342	339	348	320	338	292	310
0.77	**16.49**	**33.37**	**3.62**	**7.51**	**8.54**	**0.95**	**4.21**	**8.55**	**6.80**	**2.72**	**0.39**	**3.69**
361	356	349	359	355	349	342	336	348	320	338	293	310
0.75	**16.62**	**34.65**	**4.45**	**7.91**	**8.57**	**0.98**	**4.22**	**8.54**	**6.84**	**2.75**	**0.40**	**3.69**
361	356	350	358	355	349	342	336	348	320	338	293	310
0.75	**16.65**	**36.36**	**5.67**	**7.92**	**8.81**	**0.99**	**4.22**	**8.75**	**6.84**	**2.75**	**0.40**	**3.69**
362	356	350	358	356	349	342	336	348	320	338	293	310
0.73	**16.75**	**38.63**	**7.02**	**8.53**	**9.05**	**0.99**	**4.23**	**8.80**	**6.84**	**2.75**	**0.40**	**3.69**
362	356	350	358	356	349	342	336	348	320	338	293	310
0.72	**16.93**	**39.30**	**7.39**	**8.72**	**9.14**	**0.99**	**4.23**	**8.84**	**6.84**	**2.75**	**0.40**	**3.69**

** Includes Container Chip & Filler

CAPACITY/ANNUAL • YEAR END • DAILY

		PRACTICAL MAXIMUM BASIS	ALL GRADES WOOD PULP	WOOD PULP FOR PAPER & BOARD	DISSOLVING	CHEMICAL PAPER GRADES					
							SULFITE	SULFATE			
									BLEACHED		
		THOUSANDS SHORT TONS	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	HARDWOOD	SOFTWOOD	UNBLEACHED
ANNUAL CAPACITY 1992-1996	**1992**	**Annual Capacity**	**68,700**	**68,101**	**1,460**	**55,053**	**1,511**	**53,542**	**14,946**	**15,401**	**23,195**
		New Machines	490	490	–	490	–	490	390	100	–
		Net Improvements	(705)	(695)	9	(666)	(62)	(604)	(64)	(262)	(278)
Annual Capacity includes changes in capacity only for the portion of the year in which they are actually effective	**1993**	**Annual Capacity**	**68,485**	**67,896**	**1,469**	**54,877**	**1,449**	**53,428**	**15,272**	**15,239**	**22,917**
		New Machines	323	323	–	323	–	323	290	33	–
		Net Improvements	147	149	1	201	(4)	205	118	91	(4)
	1994	**Annual Capacity**	**68,955**	**68,368**	**1,470**	**55,401**	**1,445**	**53,956**	**15,680**	**15,363**	**22,913**
		New Machines	750	750	–	750	–	750	245	467	38
		Net Improvements	(390)	(390)	–	(419)	2	(421)	(112)	(249)	(60)
	1995	**Annual Capacity**	**69,315**	**68,728**	**1,470**	**55,732**	**1,447**	**54,285**	**15,813**	**15,581**	**22,891**
		New Machines	293	293	–	293	–	293	1	278	14
		Net Improvements	28	28	–	24	2	22	36	(44)	30
	1996*	**Annual Capacity**	**69,636**	**69,049**	**1,470**	**56,049**	**1,449**	**54,600**	**15,850**	**15,815**	**22,935**
YEAR END 1992-1996	**1992**	**Year End Capacity**	**68,522**	**67,921**	**1,454**	**54,858**	**1,512**	**53,346**	**15,128**	**15,310**	**22,908**
		New Machines	583	583	–	583	–	583	521	62	–
		Net Improvements	(527)	(513)	16	(414)	(69)	(345)	(222)	(114)	(9)
Year End Capacity is calculated by multiplying Daily Rate by number of Available Days	**1993**	**Year End Capacity**	**68,578**	**67,991**	**1,470**	**55,027**	**1,443**	**53,584**	**15,427**	**15,258**	**22,899**
		New Machines	363	363	–	363	–	363	363	–	–
		Net Improvements	237	237	–	232	2	230	43	159	28
	1994	**Year End Capacity**	**69,178**	**68,591**	**1,470**	**55,622**	**1,445**	**54,177**	**15,833**	**15,417**	**22,927**
		New Machines	799	799	–	799	–	799	2	745	52
		Net Improvements	(480)	(480)	–	(509)	2	(511)	(16)	(367)	(128)
	1995	**Year End Capacity**	**69,497**	**68,910**	**1,470**	**55,912**	**1,447**	**54,465**	**15,819**	**15,795**	**22,851**
		New Machines	–	–	–	–	–	–	–	–	–
		Net Improvements	173	173	–	171	2	169	42	34	93
	1996*	**Year End Capacity**	**69,670**	**69,083**	**1,470**	**56,083**	**1,449**	**54,634**	**15,861**	**15,829**	**22,944**
YEAR END DAILY RATE 1992-1996	**1992**	Available Days	359	360	355	360	359	360	360	361	358
		Daily Rate	**190.77**	**188.82**	**4.10**	**152.58**	**4.21**	**148.37**	**42.02**	**42.45**	**63.90**
	1993	Available Days	359	360	355	360	359	360	360	361	358
		Daily Rate	**190.89**	**188.98**	**4.14**	**153.02**	**4.02**	**149.00**	**42.84**	**42.28**	**63.88**
	1994	Available Days	359	360	355	360	359	360	360	361	358
		Daily Rate	**192.53**	**190.62**	**4.14**	**154.65**	**4.02**	**150.63**	**43.96**	**42.72**	**63.95**
	1995	Available Days	359	360	355	360	359	360	360	361	358
		Daily Rate	**193.42**	**191.51**	**4.14**	**155.46**	**4.03**	**151.43**	**43.92**	**43.77**	**63.75**
	1996*	Available Days	359	360	355	360	359	360	360	361	358
		Daily Rate	**193.91**	**192.00**	**4.14**	**155.93**	**4.03**	**151.90**	**44.04**	**43.86**	**64.00**

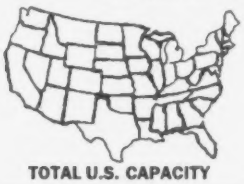
** Capacity additions presented here for 1996 include only presently known commitments and do not necessarily represent final expansion plans of the industry for that year.*

Totals not adjusted for differences in rounding.

SEMICHEMICAL	MECHANICAL					WOOD PULP FOR CONSTRUCTION PAPER & BOARD		
TOTAL	TOTAL	STONE GROUNDWOOD	REFINER	THERMO-MECHANICAL	SCREENINGS TOTAL	TOTAL	STONE GROUNDWOOD & REFINER	DEFIBRATED/EXPLODED†
4,509	7,074	2,929	316	3,829	5	599	164	435
–	–	–	–	–	–	–	–	–
(15)	(23)	(83)	28	32	–	(10)	(14)	4
4,494	7,051	2,846	344	3,861	5	589	150	439
–	–	–	–	–	–	–	–	–
5	(58)	(60)	–	2	–	(2)	(3)	1
4,499	6,993	2,786	344	3,863	5	587	147	440
–	–	–	–	–	–	–	–	–
–	29	27	–	2	–	–	–	–
4,499	7,022	2,813	344	3,865	5	587	147	440
–	–	–	–	–	–	–	–	–
1	3	1	–	2	–	–	–	–
4,500	7,025	2,814	344	3,867	5	587	147	440
4,494	7,110	2,906	344	3,860	5	601	165	436
–	–	–	–	–	–	–	–	–
4	(119)	(121)	–	2	–	(14)	(18)	4
4,498	6,991	2,785	344	3,862	5	587	147	440
–	–	–	–	–	–	–	–	–
1	4	2	–	2	–	–	–	–
4,499	6,995	2,787	344	3,864	5	587	147	440
–	–	–	–	–	–	–	–	–
–	29	27	–	2	–	–	–	–
4,499	7,024	2,814	344	3,866	5	587	147	440
–	–	–	–	–	–	–	–	–
1	1	(1)	–	2	–	–	–	–
4,500	7,025	2,813	344	3,868	5	587	147	440
358	363	363	360	364	365	308	326	302
12.55	19.57	8.00	0.96	10.62	0.01	1.95	0.51	1.44
358	363	363	360	364	365	307	322	303
12.56	19.24	7.67	0.96	10.62	0.01	1.91	0.46	1.45
358	363	363	360	364	365	307	322	303
12.57	19.25	7.67	0.96	10.63	0.01	1.91	0.46	1.45
358	363	363	360	364	365	307	322	303
12.57	19.33	7.75	0.96	10.63	0.01	1.91	0.46	1.45
358	363	363	360	364	365	307	322	303
12.57	19.34	7.74	0.96	10.64	0.01	1.91	0.46	1.45

† Excludes the defibrated/exploded pulp capacity of mills that produce hard pressed board.

PAPER & PAPERBOARD



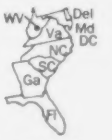
TOTAL U.S. CAPACITY

NEW ENGLAND

MID-ATLANTIC

TOTAL U.S. CAPACITY 1992	TOTAL U.S. CAPACITY 1996	GRADES	NEW ENGLAND 1992	NEW ENGLAND 1996	MID-ATLANTIC 1992	MID-ATLANTIC 1996
		Practical Maximum Basis/Thousands short tons				
91,627	**98,536**	**Total All Grades Paper & Paperboard**	**6,371**	**6,712**	**5,968**	**6,439**
89,466	96,348	**TOTAL PAPER & PAPERBOARD**	**6,318**	**6,659**	**5,648**	**6,118**
44,984	**47,469**	**Total Paper**	**5,295**	**5,448**	**4,133**	**4,312**
7,303	7,229	NEWSPRINT	n.a.	n.a.	n.a.	n.a.
25,846	27,886	PRINTING & WRITING	4,061	4,295	2,386	2,548
1,868	1,943	Uncoated Groundwood	596	667	n.a	n.a.
4,587	4,884	Coated Groundwood	1,300	1,384	257	266
4,218	4,616	Coated Free Sheet	772	768	258	250
13,814	15,016	Uncoated Free Sheet (1)	1,361	1,440	1,724	1,884
1,359	1,427	Solid Bleached Bristols	32	36	n.a.	n.a.
5,422	5,440	PACKAGING & INDUSTRIAL CONVERTING	441	461	389	385
6,413	6,914	TISSUE	532	524	1,117	1,136
44,482	**48,879**	**Total Paperboard**	**1,023**	**1,211**	**1,515**	**1,806**
22,550	23,564	UNBLEACHED KRAFT	—	—	—	—
20,692	21,302	of which Kraft Linerboard	—	—	—	—
4,947	5,598	SOLID BLEACHED	—	—	—	—
5,817	6,017	SEMICHEMICAL	n.a.	n.a.	—	—
11,168	13,700	RECYCLED	899	1,087	1,515	1,806
3,523	5,699	Containerboard	157	312	254	487
7,645	8,001	All Other Recycled	742	775	1,261	1,319
2,161	**2,188**	**Total Construction Paper & Board**	**53**	**53**	**320**	**321**
		WOOD PULP				
68,700	**69,636**	**Total All Grades Wood Pulp**	**3,565**	**3,604**	**1,336**	**1,521**
68,101	**69,049**	**TOTAL WOOD PULP FOR PAPER & BOARD**	**3,520**	**3,559**	**1,336**	**1,521**
1,460	1,470	DISSOLVING	—	—	—	—
1,511	1,449	SULFITE PAPER GRADES	n.a.	n.a.	n.a.	n.a.
53,547	54,605	SULFATE PAPER GRADES	2,192	2,208	577	795
15,401	15,815	Bleached Softwood	638	604	184	190
14,946	15,850	Bleached Hardwood	1,548	1,599	393	605
23,200	22,940	Unbleached (2)	n.a.	n.a.	—	—
4,509	4,500	SEMICHEMICAL	n.a.	n.a.	307	277
7,074	7,025	MECHANICAL	958	973	157	157
599	**587**	**Wood Pulp for Construction Paper & Board (3)**	**45**	**45**	—	—
		MARKET PULP				
10,740	**10,561**	**TOTAL MARKET WOOD PULP**	**386**	**361**	—	—
9,280	9,091	Chemical Paper Grades	386	361	—	—
424	**1,652**	**TOTAL RECOVERED PAPER MARKET PULP**	**—**	**—**	**—**	**286**

(1) Includes cotton fibers and thin papers. (2) Includes screenings. (3) Excludes defibrated/exploded pulp capacity of mills that produce hard pressed board.



EAST NORTH CENTRAL		WEST NORTH CENTRAL		SOUTH ATLANTIC		EAST SOUTH CENTRAL		WEST SOUTH CENTRAL		MOUNTAIN & PACIFIC*	
1992	**1996**	**1992**	**1996**	**1992**	**1996**	**1992**	**1996**	**1992**	**1996**	**1992**	**1996**
14,381	**15,382**	**2,486**	**3,000**	**22,411**	**23,544**	**12,824**	**14,103**	**14,328**	**15,772**	**12,858**	**13,584**
14,065	**15,055**	**2,305**	**2,813**	**21,944**	**23,068**	**12,427**	**13,706**	**13,996**	**15,439**	**12,763**	**13,490**
8,685	**9,253**	**1,772**	**1,917**	**7,898**	**8,103**	**5,203**	**5,929**	**5,834**	**6,084**	**6,164**	**6,423**
n.a.	n.a.	—	—	1,605	1,632	1,387	1,358	1,304	1,342	2,321	2,364
5,650	6,172	1,748	1,891	4,056	4,206	2,884	3,545	3,042	3,188	2,019	2,041
265	252	377	375	n.a.	n.a.	163	165	n.a.	n.a.	264	305
1,374	1,493	n.a.	n.a.	n.a.	n.a.	212	217	n.a.	n.a.	18	18
1,510	1,760	n.a.	n.a.	n.a.	n.a.	492	594	n.a.	n.a.	241	243
2,391	2,569	411	494	2,599	2,721	1,908	2,458	1,962	2,016	1,458	1,434
110	98	—	—	614	640	n.a.	n.a.	447	492	38	41
1,257	1,236	n.a.	n.a.	1,346	1,324	177	174	984	971	804	863
1,594	1,723	—	—	891	941	755	852	504	583	1,020	1,155
5,380	**5,802**	**533**	**896**	**14,046**	**14,965**	**7,224**	**7,777**	**8,162**	**9,355**	**6,599**	**7,067**
—	—	—	—	9,163	8,925	4,766	4,970	5,229	6,124	3,392	3,545
—	—	—	—	8,656	8,151	4,057	4,141	4,628	5,507	3,351	3,503
n.a.	n.a.	—	—	1,938	2,235	851	863	1,599	1,883	557	616
1,874	2,007	n.a.	n.a.	1,163	1,185	900	903	879	894	805	832
3,504	3,794	461	824	1,782	2,620	707	1,041	455	454	1,845	2,074
1,095	1,183	153	486	560	1,402	212	522	69	69	1,023	1,238
2,409	2,611	308	338	1,222	1,218	495	519	386	385	822	836
316	**327**	**181**	**187**	**467**	**476**	**397**	**397**	**332**	**333**	**95**	**94**
4,127	**4,102**	**1,027**	**1,099**	**22,056**	**21,959**	**13,668**	**14,031**	**12,611**	**13,042**	**10,310**	**10,278**
4,046	**4,017**	**978**	**1,050**	**21,947**	**21,850**	**13,520**	**13,883**	**12,505**	**12,935**	**10,249**	**10,234**
—	—	—	—	459	455	n.a.	n.a.	—	—	673	676
377	321	—	—	—	—	—	—	—	—	655	652
1,852	1,879	469	529	19,432	19,305	11,428	11,851	10,751	11,282	6,846	6,756
426	431	n.a.	n.a.	5,370	5,507	3,124	3,339	2,582	2,716	2,994	2,963
1,181	1,201	n.a.	n.a.	4,565	4,803	3,923	4,083	2,705	2,895	248	200
n.a.	n.a.	n.a.	n.a.	9,497	8,995	4,381	4,429	5,464	5,671	3,604	3,593
1,318	1,316	n.a.	n.a.	835	837	660	648	671	683	492	504
499	501	469	480	1,221	1,253	1,104	1,045	1,083	970	1,583	1,646
81	**85**	**49**	**49**	**109**	**109**	**148**	**148**	**106**	**107**	**61**	**44**
n.a.	**n.a.**	—	—	**4,318**	**4,512**	**2,973**	**2,904**	**742**	**726**	**2,020**	**1,756**
n.a.	n.a.	—	—	3,860	4,058	2,645	2,565	742	726	1,346	1,079
174	**717**	**—**	**133**	**63**	**199**	**137**	**252**	**—**	**—**	**50**	**65**

n.a.— not available *Includes Alaska

WOOD PULP (EXCEPT DEFIBRATED/EXPLODED & SCREENINGS)

Thousands metric tons

	TOTALS			MECHANICAL		SEMICHEMICAL		CHEMICAL PAPER GRADES			
									of which market		
	1992	1996	Percent Increase	1992	1996	1992	1996	1992	1996	1992	1995*
WORLD TOTAL	**179,089**	**190,792**	**6.5**	**43,807**	**45,410**	**9,468**	**10,190**	**121,176**	**130,581**	**32,707**	**34,759**
DEVELOPED MARKET ECONOMIES	**162,094**	**168,243**	**3.8**	**40,760**	**41,672**	**8,475**	**9,076**	**108,986**	**113,842**	**27,823**	**29,147**
NORTH AMERICA	**89,268**	**90,648**	1.5	19,380	18,998	4,644	4,645	63,642	65,393	16,376	17,109
U.S.	**61,925**	**62,770**	1.4	6,566	6,506	4,091	4,082	49,944	50,848	8,419	8,300
Canada	**27,343**	**27,878**	2.0	12,814	12,492	553	563	13,698	14,545	7,957	8,809
JAPAN	**15,451**	**15,552**	0.7	3,456	3,456	897	897	10,773	10,874	796	796
WESTERN EUROPE	**37,520**	**41,154**	9.7	13,029	13,938	1,525	1,565	22,481	25,139	9,213	9,792
E.E.C.	**11,572**	**12,514**	8.1	3,871	3,932	492	492	7,149	8,028	3,461	3,638
Nordic Countries	**23,056**	**25,629**	11.2	8,348	9,167	965	1,005	13,578	15,272	5,319	5,707
Rest of Western Europe	**2,892**	**3,011**	4.1	810	839	68	68	1,754	1,839	433	447
EASTERN EUROPE	**3,294**	**3,338**	1.3	454	461	319	319	2,284	2,319	674	674
OCEANIA	**2,799**	**3,426**	22.4	1,161	1,169	286	830	1,352	1,427	374	386
FORMER USSR	**11,892**	**12,255**	3.1	2,910	3,280	640	656	7,538	7,774	—	—
OTHERS	**1,870**	**1,870**	—	370	370	164	164	916	916	390	390
DEVELOPING MARKET ECONOMIES	**16,995**	**22,549**	**32.7**	**3,047**	**3,738**	**993**	**1,114**	**12,190**	**16,739**	**4,884**	**5,612**
AFRICA	**1,166**	**1,324**	13.6	181	186	34	92	921	1,016	401	464
LATIN AMERICA	**9,632**	**12,403**	28.8	1,370	1,893	344	385	7,834	9,942	4,024	4,444
of which Brazil	**5,769**	**7,357**	27.5	618	915	84	84	4,997	6,189	2,407	2,643
Mexico	**755**	**780**	3.3	281	281	—	—	474	499	—	—
ASIA	**6,197**	**8,822**	42.4	1,496	1,659	615	637	3,435	5,781	459	704

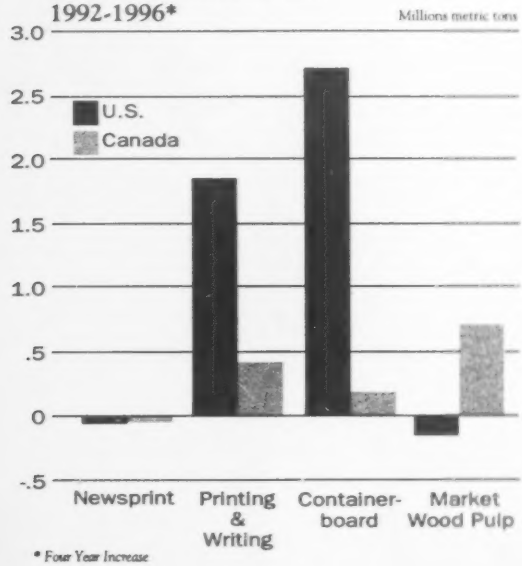
*No data available for 1996.

Source: Food and Agriculture Organization of the United Nations, Canadian Pulp & Paper Association, American Forest & Paper Association.

NORTH AMERICA

PLANNED INCREASES IN ANNUAL CAPACITIES 1992-1996*

Millions metric tons



* Four Year Increase

MARKET WOOD PULP

Thousands metric tons

NORTH AMERICA	1992	1993	1994	1995	1996	Percent Increase
TOTAL MARKET WOOD PULP	**19,698**	**19,771**	**20,177**	**20,301**	**20,248**	**2.8**
DISSOLVING	1,603	1,611	1,612	1,612	1,612	0.6
CHEMICAL PAPER GRADES	16,376	16,605	16,986	17,109	17,056	4.2
Sulfite	540	445	445	445	445	(17.6)
Sulfate	15,836	16,159	16,541	16,664	16,611	4.9
MECHANICAL	1,720	1,555	1,580	1,580	1,580	(8.1)

PAPER & PAPERBOARD (EXCEPT INSULATING & HARD PRESSED BOARD)

Thousands metric tons

DISSOLVING		TOTALS			NEWSPRINT		PRINTING & WRITING		WRAPPING & PACKAGING		ALL OTHERS	
1992	1996	1992	1996	Percent Increase	1992	1996	1992	1996	1992	1996	1992	1996
4,639	**4,611**	**283,106**	**310,324**	**9.6**	**37,856**	**40,196**	**84,423**	**93,505**	**125,100**	**137,721**	**35,726**	**38,902**
3,874	**3,053**	**230,672**	**250,574**	**8.6**	**33,914**	**35,547**	**69,993**	**76,794**	**99,607**	**108,826**	**27,157**	**29,407**
1,603	1,612	**100,891**	**107,778**	6.8	16,705	16,586	27,595	29,854	45,666	49,864	10,924	11,474
1,325	1,334	**82,092**	**88,357**	7.6	6,625	6,558	23,447	25,298	41,740	45,696	10,279	10,805
278	278	**18,799**	**19,421**	3.3	10,080	10,028	4,148	4,556	3,926	4,168	645	669
325	325	**33,071**	**35,544**	7.5	3,773	4,031	10,937	11,698	13,646	14,632	4,715	5,183
485	512	**74,743**	**82,917**	10.9	9,600	10,705	27,858	30,968	29,545	32,757	7,740	8,487
60	62	**46,273**	**51,930**	12.2	3,883	4,615	16,803	18,580	19,645	22,083	5,942	6,652
165	185	**22,191**	**24,454**	10.2	4,882	5,245	8,704	9,911	7,494	8,167	1,111	1,131
260	265	**6,279**	**6,533**	4.0	835	845	2,351	2,477	2,406	2,507	687	704
237	239	**5,321**	**6,222**	16.9	355	355	1,406	1,846	3,071	3,412	489	609
—	—	**3,240**	**3,467**	7.0	922	943	395	451	1,670	1,797	253	276
804	545	**11,302**	**12,470**	10.3	2,118	2,486	1,430	1,568	4,906	5,226	2,848	3,190
420	420	**2,104**	**2,176**	3.4	441	441	372	409	1,103	1,138	188	188
765	**958**	**52,434**	**59,750**	**14.0**	**3,942**	**4,649**	**14,430**	**16,711**	**25,493**	**28,895**	**8,569**	**9,495**
30	30	**1,646**	**1,795**	9.1	169	177	684	711	683	790	110	117
84	183	**14,603**	**16,454**	12.7	1,342	1,389	3,394	4,187	7,858	8,583	2,009	2,295
70	169	**6,066**	**7,143**	17.8	263	273	1,711	2,384	3,308	3,559	784	927
—	—	**3,935**	**4,275**	8.6	430	430	724	729	2,268	2,531	513	585
651	745	**36,185**	**41,501**	14.7	2,431	3,083	10,352	11,813	16,952	19,522	6,450	7,083

PAPER & PAPERBOARD (EXCEPT INSULATING & HARD PRESSED BOARD)

Thousands metric tons

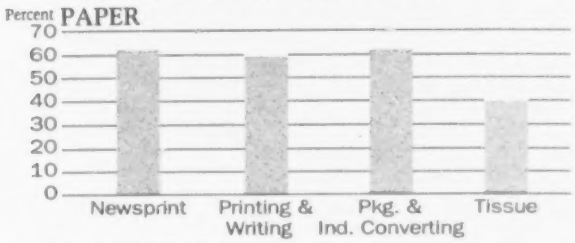
NORTH AMERICA	1992	1993	1994	1995	1996	Percent Increase
TOTAL PAPER AND PAPERBOARD	**100,891**	**102,533**	**104,423**	**106,142**	**107,778**	**6.8**
PAPER	**56,272**	**56,743**	**57,765**	**58,464**	**58,920**	**4.7**
NEWSPRINT	16,705	16,518	16,647	16,652	16,586	(0.7)
PRINTING & WRITING	27,595	28,200	28,903	29,442	29,854	8.2
Wood Containing	8,367	8,552	8,661	8,793	8,942	6.9
Wood Free	19,229	19,648	20,242	20,649	20,912	8.8
TISSUE	6,511	6,632	6,793	6,903	6,989	7.3
PACKAGING & IND. CONV.	5,461	5,394	5,422	5,466	5,490	0.5
PAPERBOARD	**44,618**	**45,790**	**46,658**	**47,678**	**48,858**	**9.5**
CONTAINERBOARD	29,815	30,795	31,214	31,845	32,699	9.7
Linerboard	21,392	22,099	22,413	22,911	23,564	10.2
Corrugating	8,423	8,696	8,801	8,934	9,135	8.5
ALL OTHER PAPERBOARD	14,803	14,995	15,444	15,833	16,159	9.2

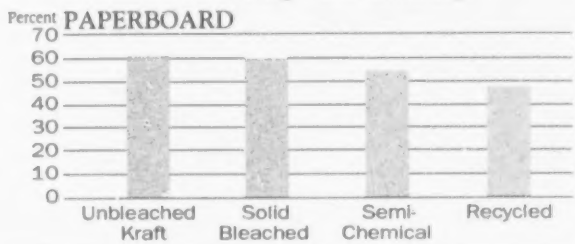
MILL SIZE-PAPER, PAPERBOARD & WOOD PULP

ANNUAL CAPACITY RANGE*	PAPER & PAPERBOARD		WOOD PULP	
	Number of Mills	Share of Total Capacity	Number of Mills	Share of Total Capacity
TOTAL	547	100%	203	100%
0-25	113	1.5	8	0.2
26-50	94	3.7	11	0.6
51-75	68	4.9	6	0.5
76-100	42	4.0	17	2.1
101-125	31	3.8	10	1.7
126-150	15	2.2	5	1.0
151-175	16	2.8	6	1.4
176-200	20	4.1	8	2.2
201-250	35	8.8	21	6.7
251-300	17	5.2	15	5.9
301-350	11	3.9	9	4.3
351-400	9	3.7	16	8.7
401-450	14	6.6	7	4.5
451-500	13	6.8	9	6.2
over 500	49	38.0	55	54.0

* Thousands short tons

SHARE OF MACHINE CAPACITY INSTALLED OR REBUILT WITHIN THE PAST TEN YEARS





SIZE OF MACHINES BY PRINCIPAL GRADE PRODUCED

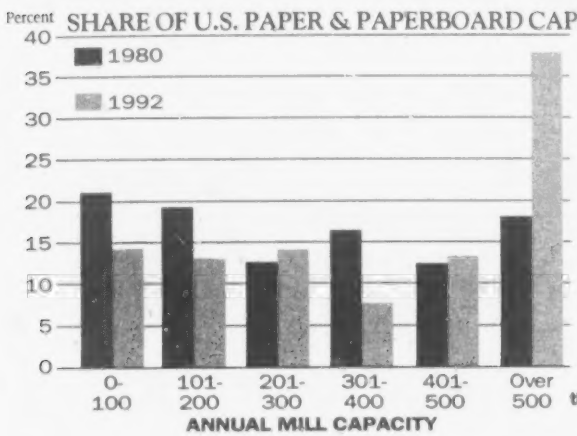
PAPER

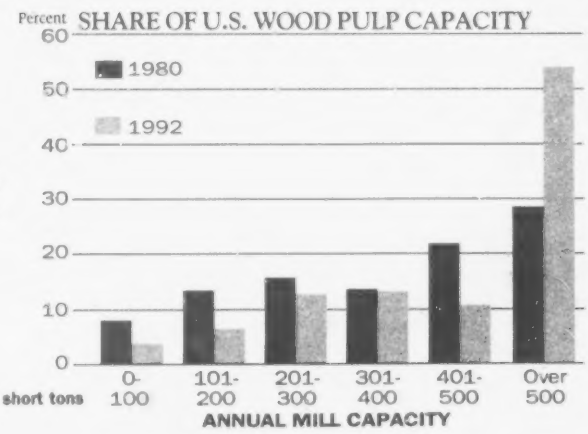
MACHINE ANNUAL CAPACITY	TOTAL ALL GRADES		NEWSPRINT		PRINTING & WRITING		PACKAGING & IND. CONV.		TISSUE	
Thousands short tons	Total Number of Machines	Share of Total Capacity	Number of Machines	Share of Total Capacity	Number of Machines	Share of Total Capacity	Number of Machines	Share of Total Capacity	Number of Machines	Share of Total Capacity
TOTAL	1,216	100%	43	100%	400	100%	168	100%	218	100%
0-5	94	—	—	—	33	—	30	2	18	1
6-10	100	1	—	—	29	1	38	6	25	3
11-15	82	1	—	—	18	1	24	6	27	6
16-20	80	2	—	—	22	1	14	5	22	6
21-30	155	4	—	—	51	5	25	12	40	16
31-40	111	4	—	—	41	6	8	6	25	13
41-50	107	6	2	1	35	6	7	6	24	17
51-75	145	10	2	2	58	14	5	6	30	29
76-100	74	7	3	4	33	11	3	5	7	9
101-125	48	6	1	2	22	10	5	11	—	—
126-150	42	7	11	22	14	8	2	5	—	—
151-200	71	14	11	26	27	19	4	13	—	—
201-250	41	11	11	36	9	8	1	4	—	—
251-300	25	8	2	7	5	5	—	—	—	—
301-400	27	11	—	—	3	5	2	13	—	—
over 400	14	8	—	—	—	—	—	—	—	—

PAPERBOARD

MACHINE ANNUAL CAPACITY	UNBLEACHED KRAFT		SOLID BLEACHED		SEMICHEMICAL		RECYCLED		CONSTRUCTION GRADES	
Thousands short tons	Number of Machines	Share of Total Capacity	Number of Machines	Share of Total Capacity	Number of Machines	Share of Total Capacity	Number of Machines	Share of Total Capacity	Number of Machines	Share of Total Capacity
TOTAL	75	100%	26	100%	36	100%	191	100%	59	100%
0-5	—	—	—	—	—	—	5	—	8	1
6-10	—	—	—	—	—	—	2	—	6	3
11-15	—	—	—	—	—	—	8	1	5	3
16-20	—	—	—	—	—	—	16	3	6	5
21-30	—	—	—	—	—	—	33	8	6	8
31-40	2	—	—	—	1	1	25	9	9	16
41-50	—	—	1	1	1	1	28	13	9	22
51-75	—	—	2	3	4	4	39	24	5	17
76-100	5	2	2	4	1	1	16	13	4	18
101-125	3	2	1	2	6	11	10	12	—	—
126-150	4	3	1	3	6	13	3	4	1	7
151-200	10	9	10	37	6	16	3	5	—	—
201-250	8	9	5	25	6	22	1	3	—	—
251-300	12	16	2	11	2	9	2	5	—	—
301-400	19	32	2	14	1	6	—	—	—	—
over 400	12	27	—	—	2	16	—	—	—	—

All data based on machines in place January 1992.





MILL SIZE

thousands of short tons

AGE OF MACHINES BY PRINCIPAL GRADE PRODUCED

PAPER	TOTAL ALL GRADES		NEWSPRINT		PRINTING & WRITING		PACKAGING & IND. CONV.		TISSUE	
YEAR MACHINE INSTALLED OR REBUILT*	Total Number of Machines	Share of Total Capacity	Number of Machines	Share of Total Capacity	Number of Machines	Share of Total Capacity	Number of Machines	Share of Total Capacity	Number of Machines	Share of Total Capacity
TOTAL	**1,216**		**43**		**400**		**168**		**218**	
No Data Available	145		—		51		15		35	
Total Sample	1,071	100%	43	100%	349	100%	153	100%	183	100%
1991	40	4	—	—	14	4	7	10	9	6
1990	56	9	4	9	18	9	7	4	8	6
1989	57	8	6	15	26	10	4	1	4	3
1988	80	10	6	13	27	9	10	7	9	7
1987	43	4	4	8	13	4	7	6	4	3
1986	50	8	1	1	22	9	8	12	4	3
1985	53	5	2	4	18	4	6	4	8	5
1984	33	3	3	5	12	4	5	6	5	3
1983	24	1	1	2	4	1	7	2	6	3
1982	37	4	3	6	17	5	9	11	2	1
1981	40	4	2	7	12	3	6	5	7	5
1976-1980	147	14	6	19	52	11	13	6	30	17
1971-1975	101	9	2	5	22	8	20	8	11	6
1966-1970	110	7	1	3	33	10	17	7	31	16
1961-1965	81	5	—	—	31	6	14	4	23	11
1956-1960	29	1	2	3	9	1	3	1	5	1
1951-1955	22	1	—	—	8	1	3	1	1	—
PRIOR TO 1951	68	3	—	—	11	1	7	5	16	4

PAPERBOARD	UNBLEACHED KRAFT		SOLID BLEACHED		SEMICHEMICAL		RECYCLED		CONSTRUCTION GRADES	
YEAR MACHINE INSTALLED OR REBUILT*	Number of Machines	Share of Total Capacity	Number of Machines	Share of Total Capacity	Number of Machines	Share of Total Capacity	Number of Machines	Share of Total Capacity	Number of Machines	Share of Total Capacity
TOTAL	**75**		**26**		**36**		**191**		**59**	
No Data Available	—		—		—		28		16	
Total Sample	75	100%	26	100%	36	100%	163	100%	43	100%
1991	3	5	2	8	1	2	4	1	—	—
1990	5	9	1	6	5	16	5	7	3	11
1989	5	7	1	3	1	6	10	10	—	—
1988	12	19	1	4	1	4	12	5	2	7
1987	1	—	2	11	3	9	7	7	2	5
1986	4	8	4	16	2	12	4	2	1	2
1985	6	8	2	8	—	—	9	7	2	11
1984	2	3	—	—	1	2	4	3	1	—
1983	1	1	—	—	—	—	5	3	—	—
1982	1	1	1	4	1	4	3	2	—	—
1981	1	1	1	7	2	9	7	4	2	9
1976-1980	14	19	3	13	6	10	19	11	4	9
1971-1975	4	5	2	8	8	17	22	14	10	21
1966-1970	3	3	2	3	3	5	13	6	7	7
1961-1965	3	4	2	7	1	2	5	2	2	4
1956-1960	2	1	2	2	1	2	3	2	2	6
1951-1955	2	2	—	—	—	—	8	4	—	—
PRIOR TO 1951	6	4	—	—	—	—	23	10	5	8

*Rebuilds include only modifications which significantly extended the useful life or increased the capacity of a machine. All data based on machines in place January 1992.

Thousands short tons

FIBER CONSUMPTION IN PAPER & PAPERBOARD MANUFACTURE

	Total U.S.	Percent of Total Fiber	New England	Mid-Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain & Pacific
1992										
TOTAL FIBER	**87,915**	**100.0**	**5,625**	**5,406**	**13,379**	**2,117**	**22,131**	**12,446**	**14,123**	**12,688**
TOTAL WOOD PULP	61,262	69.7	3,884	2,614	6,172	1,365	17,147	10,268	11,800	8,012
Manufactured on-site	52,535	59.8	2,484	1,266	2,957	920	16,392	9,670	11,629	7,217
*Purchased	6,149	7.0	912	939	2,229	290	544	541	137	557
*Transferred	2,578	2.9	488	409	986	155	211	57	34	238
†TOTAL RECOVERED PAPER	26,476	30.1	1,672	2,767	7,167	740	4,977	2,175	2,310	4,668
Mixed Papers	3,463	3.9	176	349	1,041	142	675	309	320	451
Newspapers	4,817	5.5	246	748	1,080	111	1,023	169	209	1,231
Corrugated	12,532	14.3	546	876	3,019	347	2,624	1,437	1,171	2,512
Pulp Substitutes	2,996	3.4	462	459	840	117	292	230	326	270
High Grade Deinking	2,668	3.0	242	335	1,187	23	363	30	284	204
OTHER FIBERS	177	0.2	69	25	40	12	7	3	13	8
1993										
TOTAL FIBER	**90,585**	**100.0**	**5,699**	**5,736**	**14,092**	**2,171**	**22,794**	**12,885**	**14,440**	**12,768**
TOTAL WOOD PULP	61,229	67.6	3,861	2,733	6,455	1,401	17,127	10,162	11,829	7,661
Manufactured on-site	52,262	57.7	2,518	1,286	3,142	949	16,278	9,547	11,667	6,875
*Purchased	6,362	7.0	926	1,010	2,300	283	641	555	134	513
*Transferred	2,605	2.9	417	437	1,013	169	208	60	28	273
†TOTAL RECOVERED PAPER	29,169	32.2	1,766	2,966	7,602	758	5,660	2,720	2,598	5,099
Mixed Papers	3,758	4.1	196	385	1,115	131	692	365	336	536
Newspapers	5,268	5.8	322	753	1,176	111	1,027	219	313	1,347
Corrugated	14,196	15.7	570	999	3,112	369	3,272	1,840	1,329	2,705
Pulp Substitutes	3,133	3.5	490	467	936	121	294	240	319	266
High Grade Deinking	2,816	3.1	188	362	1,263	26	375	56	301	245
OTHER FIBERS	187	0.2	72	37	35	12	7	3	13	8
1994										
TOTAL FIBER	**95,106**	**100.0**	**6,053**	**6,244**	**14,593**	**2,238**	**23,797**	**13,395**	**14,973**	**13,813**
TOTAL WOOD PULP	63,696	67.0	3,948	2,954	6,645	1,430	17,769	10,521	12,078	8,351
Manufactured on-site	54,214	57.0	2,533	1,514	3,204	952	16,816	9,909	11,892	7,394
*Purchased	6,780	7.1	978	1,033	2,442	304	650	539	147	687
*Transferred	2,702	2.9	437	407	999	174	303	73	39	270
†TOTAL RECOVERED PAPER	31,199	32.8	2,012	3,251	7,913	796	6,021	2,870	2,882	5,454
Mixed Papers	4,045	4.3	235	433	1,191	128	708	394	351	605
Newspapers	5,631	5.9	375	774	1,193	112	1,118	269	369	1,421
Corrugated	15,094	15.9	585	1,200	3,253	391	3,477	1,885	1,440	2,863
Pulp Substitutes	3,407	3.6	548	482	996	133	327	262	357	302
High Grade Deinking	3,022	3.2	269	362	1,280	32	391	60	365	263
OTHER FIBERS	211	0.2	93	39	35	12	7	4	13	8
1995										
TOTAL FIBER	**97,194**	**100.0**	**6,162**	**6,320**	**15,007**	**2,371**	**24,070**	**13,578**	**15,588**	**14,098**
TOTAL WOOD PULP	64,050	65.9	3,944	2,948	6,737	1,437	17,660	10,603	12,317	8,404
Manufactured on-site	54,519	56.1	2,563	1,518	3,197	967	16,723	9,964	12,131	7,456
*Purchased	6,838	7.0	944	1,027	2,516	311	643	566	147	684
*Transferred	2,693	2.8	437	403	1,024	159	294	73	39	264
†TOTAL RECOVERED PAPER	32,931	33.9	2,124	3,333	8,234	922	6,403	2,971	3,258	5,686
Mixed Papers	4,349	4.5	241	462	1,307	153	743	433	362	648
Newspapers	5,799	6.0	382	786	1,238	112	1,164	271	413	1,433
Corrugated	16,052	16.5	629	1,221	3,366	484	3,693	1,917	1,717	3,025
Pulp Substitutes	3.515	3.6	552	494	1,039	141	328	284	357	320
High Grade Deinking	3,216	3.3	320	370	1,284	32	475	66	409	260
OTHER FIBERS	213	0.2	94	39	36	12	7	4	13	8

* *Comprises all dried, wet lap or slush pulp not produced on-site including transfers from company or affiliated mills.*

† *Includes construction grades and molded pulp products.*

Thousands short tons

FIBER CONSUMPTION IN PAPER & PAPERBOARD MANUFACTURE (CONTINUED)

	Total U.S.	Percent of Total Fiber	New England	Mid-Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain & Pacific
1996										
TOTAL FIBER	**98,905**	**100.0**	**6,332**	**6,342**	**15,167**	**2,711**	**24,220**	**13,818**	**16,111**	**14,204**
TOTAL WOOD PULP	64,286	65.0	3,970	2,958	6,775	1,454	17,637	10,674	12,465	8,353
Manufactured on-site	54,706	55.3	2,574	1,523	3,228	984	16,695	9,993	12,279	7,430
*Purchased	6,881	7.0	959	1,034	2,522	302	649	608	147	660
*Transferred	2,699	2.7	437	401	1,025	168	293	73	39	263
†TOTAL RECOVERED PAPER	34,405	34.8	2,268	3,345	8,355	1,245	6,576	3,140	3,633	5,843
Mixed Papers	4,596	4.6	245	472	1,359	211	770	496	375	668
Newspapers	5,918	6.0	384	785	1,275	117	1,176	280	431	1,470
Corrugated	16,979	17.2	759	1,221	3,367	737	3,769	1,978	2,054	3,094
Pulp Substitutes	3,592	3.6	556	493	1,054	147	329	297	358	358
High Grade Deinking	3,320	3.4	324	374	1,300	33	532	89	415	253
OTHER FIBERS	214	0.2	94	39	37	12	7	4	13	8

Thousands of CORDS

PULPWOOD CONSUMPTION IN WOOD PULP MANUFACTURE

	Total U.S.	Percent of Total Fiber	New England	Mid-Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain & Pacific
1992										
TOTAL PULPWOOD	**99,497**	**100**	**5,009**	**1,648**	**5,749**	**1,395**	**31,962**	**19,876**	**17,707**	**16,151**
Roundwood & Roundwood Chips	65,159	65.5	3,958	1,352	4,971	1,184	24,012	14,774	12,084	2,824
Forest Residues	5,983	6.0	76	38	300	38	1,122	1,037	1,803	1,569
Manufacturing Residues	28,355	28.5	975	258	478	173	6,828	4,065	3,820	11,758
1993										
TOTAL PULPWOOD	**97,698**	**100**	**5,157**	**1,697**	**5,937**	**1,468**	**31,441**	**20,127**	**17,794**	**14,077**
Roundwood & Roundwood Chips	64,642	66.2	4,138	1,380	5,110	1,252	23,425	14,720	12,015	2,602
Forest Residues	6,130	6.3	76	38	334	37	1,120	1,167	1,869	1,489
Manufacturing Residues	26,926	27.6	943	279	493	179	6,896	4,240	3,910	9,986
1994										
TOTAL PULPWOOD	**101,653**	**100**	**5,201**	**2,027**	**5,958**	**1,455**	**32,359**	**20,847**	**18,417**	**15,389**
Roundwood & Roundwood Chips	66,242	65.2	4,168	1,398	5,122	1,240	24,101	15,227	12,358	2,628
Forest Residues	6,574	6.5	76	38	337	36	1,151	1,308	1,956	1,672
Manufacturing Residues	28,837	28.4	957	591	499	179	7,107	4,312	4,103	11,089
1995										
TOTAL PULPWOOD	**102,077**	**100**	**5,270**	**2,037**	**5,945**	**1,491**	**32,382**	**20,952**	**18,652**	**15,348**
Roundwood & Roundwood Chips	66,567	65.2	4,224	1,408	5,113	1,276	24,142	15,298	12,416	2,690
Forest Residues	6,702	6.6	76	38	331	36	1,154	1,338	2,050	1,679
Manufacturing Residues	28,808	28.2	970	591	501	179	7,086	4,316	4,186	10,979
1996										
TOTAL PULPWOOD	**102,441**	**100**	**5,293**	**2,045**	**6,028**	**1,516**	**32,308**	**21,007**	**18,897**	**15,347**
Roundwood & Roundwood Chips	66,804	65.2	4,233	1,416	5,187	1,301	24,063	15,328	12,538	2,738
Forest Residues	6,847	6.7	76	38	335	36	1,157	1,360	2,166	1,679
Manufacturing Residues	28,790	28.1	984	591	506	179	7,088	4,319	4,193	10,930

FIBER CONSUMPTION DEFINITIONS

1992 — Actual consumption
1993 — Best estimate based on year-to-date experience
1994-1996 — Consumption at capacity levels of production

ACTUAL CONSUMPTION

Thousands short tons

END PRODUCTS	1992 Total	Mixed Papers	Newspapers	Corrugated	Pulp Substitutes	High Grade Deinking
TOTAL ALL GRADES	**26,476**	**3,463**	**4,817**	**12,532**	**2,996**	**2,668**
TOTAL PAPER	**8,752**	**1,075**	**2,782**	**425**	**2,081**	**2,389**
NEWSPRINT	2,570	251	2,200	-	6	113
PRINTING & WRITING	2,222	169	73	5	1,365	610
PACKAGING & IND. CONV.	640	108	13	301	161	57
TISSUE	3,320	547	496	119	549	1,609
TOTAL PAPERBOARD	**16,584**	**2,013**	**1,660**	**11,828**	**807**	**276**
KRAFT,LINERBOARD	3,274	148	42	2,821	131	132
OTHER KRAFT,BL. & UNBL.	225	26	-	185	14	-
SEMICHEMICAL	2,180	151	48	1,974	7	-
RECYCLED CONTAINERBOARD	3,572	65	52	3,424	30	1
OTHER RECYCLED PAPERBOARD	7,333	1,623	1,518	3,424	625	143
CONSTRUCTION PAPER & BOARD	**1,140**	**375**	**375**	**279**	**108**	**3**

Data on recovered paper are collected in an industrywide survey of paper and paperboard mills under the following definitions.
1992-Actual Consumption
1993-Best estimate based on year-to-date experience
1994-1996-Consumption at capacity levels of production

PLANNED FUTURE CONSUMPTION

Thousands short tons

END PRODUCTS	1993 Total	Mixed Papers	Newspapers	Corrugated	Pulp Substitutes	High Grade Deinking	1994 Total	Mixed Papers	Newspapers	Corrugated	Pulp Substitutes	High Grade Deinking
TOTAL ALL GRADES	**29,169**	**3,756**	**5,268**	**14,196**	**3,133**	**2,816**	**31,199**	**4,045**	**5,631**	**15,094**	**3,407**	**3,022**
TOTAL PAPER	**9,593**	**1,283**	**3,132**	**460**	**2,212**	**2,506**	**10,541**	**1,502**	**3,386**	**518**	**2,438**	**2,697**
NEWSPRINT	2,943	340	2,487	-	1	115	3,163	403	2,644	-	1	115
PRINTING & WRITING	2,376	228	121	5	1,433	589	2,777	291	209	5	1,596	676
PACKAGING & IND. CONV.	671	100	12	322	177	60	750	124	12	348	188	78
TISSUE	3,603	615	512	133	601	1,742	3,851	684	521	165	653	1,828
TOTAL PAPERBOARD	**18,401**	**2,108**	**1,760**	**13,421**	**805**	**307**	**19,410**	**2,173**	**1,831**	**14,240**	**845**	**321**
KRAFT LINERBOARD	3,573	156	42	3,124	107	144	3,723	174	42	3,223	115	169
OTHER KRAFT,BL. & UNBL.	347	14	-	315	18	-	394	2	-	380	12	-
SEMICHEMICAL	2,247	160	63	2,017	7	-	2,276	171	63	2,035	7	-
RECYCLED CONTAINERBOARD	4,609	91	56	4,439	22	1	5,082	101	74	4,877	29	1
OTHER RECYCLED PAPERBOARD	7,625	1,687	1,599	3,526	651	162	7,935	1,725	1,652	3,725	682	151
CONSTRUCTION PAPER & BOARD	**1,175**	**365**	**376**	**315**	**116**	**3**	**1,248**	**370**	**414**	**336**	**124**	**4**

END PRODUCTS	1995 Total	Mixed Papers	Newspapers	Corrugated	Pulp Substitutes	High Grade Deinking	1996 Total	Mixed Papers	Newspapers	Corrugated	Pulp Substitutes	High Grade Deinking
TOTAL ALL GRADES	**32,931**	**4,349**	**5,799**	**16,052**	**3,515**	**3,216**	**34,405**	**4,596**	**5,918**	**16,979**	**3,592**	**3,320**
TOTAL PAPER	**11,085**	**1,682**	**3,459**	**555**	**2,527**	**2,862**	**11,449**	**1,818**	**3,528**	**580**	**2,572**	**2,950**
NEWSPRINT	3,219	410	2,693	-	1	115	3,277	414	2,747	-	1	115
PRINTING & WRITING	3,051	370	209	5	1,647	820	3,233	463	209	5	1,677	879
PACKAGING & IND. CONV.	782	138	12	378	188	66	806	145	12	402	187	60
TISSUE	4,033	764	545	172	691	1,861	4,132	796	560	173	707	1,896
TOTAL PAPERBOARD	**20,593**	**2,297**	**1,924**	**15,161**	**861**	**350**	**21,701**	**2,408**	**1,973**	**16,063**	**891**	**366**
KRAFT LINERBOARD	4,039	186	57	3,490	115	191	4,486	192	57	3,909	140	188
OTHER KRAFT, BL. & UNBL.	434	-	-	422	12	-	464	7	-	445	12	-
SEMICHEMICAL	2,383	207	64	2,105	7	-	2,421	227	64	2,123	7	-
RECYCLED CONTAINERBOARD	5,613	144	99	5,340	29	1	6,109	211	110	5,758	29	1
OTHER RECYCLED PAPERBOARD	8,124	1,760	1,704	3,804	698	158	8,221	1,771	1,742	3,828	703	177
CONSTRUCTION PAPER & BOARD	**1,253**	**370**	**416**	**336**	**127**	**4**	**1,256**	**370**	**417**	**336**	**129**	**4**

PROJECTS INCLUDED IN SURVEY ESTIMATES

Expansion projects include new paper, paperboard, and wood pulp mills and new paper and paperboard machines in existing mills. These projects have been publicly announced by the managements of the companies concerned and are included in the capacity estimates reported in this survey. Survey estimates also include confirmed expansion projects that have not been publicly announced which, in keeping with the confidential nature of the survey, are not included in this listing.

Thousands short tons

PAPER, PAPERBOARD & MARKET WOOD PULP

GRADES	ANNUAL CAPACITY	PROPOSED START-UP	COMPANY & LOCATION
Coated Free Sheet	212	1992	Consolidated Papers Inc., Wisconsin Rapids, WI
Uncoated Free Sheet	100/150	1994	Appleton Papers Inc., Combined Locks, WI
Uncoated Free Sheet	240	1993	Champion International Corporation, Courtland, AL
Uncoated Free Sheet	360	1995	International Paper Company, Selma, AL
Uncoated Free Sheet	25	1994	Kimberly-Clark Corporation, Neenah, WI
Uncoated Free Sheet	14 net*	1992	Kimberly-Clark Corporation, Whiting, WI
Uncoated Free Sheet	215	1994	Willamette Industries Inc., Johnsonburg, PA
Tissue	30	1992	Bay West Paper Company, Middletown, OH
Tissue	65	1992	Fort Howard Paper Company, Green Bay, WI
Tissue	65	1994	Fort Howard Paper Company, Muskogee, OK
Tissue	n.a.	1992	Kimberly-Clark Corporation, Loudon, TN
Tissue	n.a.	1992	Potlatch Corporation, Lewiston, ID
Tissue	70	1993	Procter & Gamble Company, Oxnard, CA
Tissue	n.a.	1995	Scott Paper Company, Owensboro, KY
Thin Papers	n.a.	1993	Kimberly-Clark Corporation, Spotswood, NJ
Linerboard	265	1995	Willamette Industries Inc., Campti, LA
Solid Bleached Paperboard	220	1993	Westvaco Corporation, Covington, VA
Solid Bleached Paperboard	n.a.	1995	Temple-Inland Inc., Evadale, TX
Recycled Corrugating	300†	1995	Cedar River Paper Company, Cedar Springs, IA
Recycled Corrugating	60	1993	Interstate Resources Inc., Reading, PA
Recycled Linerboard	80†	1995	Liberty Paper Inc., Becker, MN
Recycled Linerboard	135†	1994	McKinley Paper Company (sub. Amcor Ltd.), Prewitt, NM
Recycled Linerboard	150†	1994	Pratt Industries Inc., Conyers, GA
Recycled Linerboard	175†	1995	Rand-Whitney Corporation, Montville, CT
Recycled Linerboard	100†	1994	Southern Container Corporation, Syracuse, NY
Recycled Containerboard	210†	1992	Temple-Inland Inc., Maysville, KY
Recycled Linerboard	120	1994	Virginia Fibre Corporation, Riverville, VA
Bleached Sulfate Market Pulp	480	1992	Alabama Pine Pulp Company, Claiborne, AL

Capacity estimates for recovered paper market pulp, reported on page 11 of the survey, include expansion projects reported by the companies listed below.

RECOVERED PAPER MARKET PULP EXPANSIONS

COMPANY & LOCATION	PROPOSED START-UP	COMPANY & LOCATION	PROPOSED START-UP
American Power Corporation, Sanford, WV	1996	Ohio Paper Mills, Cincinnati, OH	1992
Burrows Paper Corporation, Little Falls, NY	1993	Pencor Inc., Hagerstown, MD	1994
City Forest Corp., Ladysmith, WI	1995	Ponderosa Fibres of America Inc., Augusta, GA	1992
EcoFibre Inc., DePere, WI	1992	Ponderosa Fibres of America Inc., Memphis, TN	1992
Fox River Fibre, DePere, WI	1992	Ponderosa Fibres of America Inc., Northampton, PA	n.a.
FSC Paper Company, Alsip, IL	1992	Ponderosa Fibres of America Inc., Oshkosh, WI	1992
Great Lakes Pulp & Fibre, Menominee, MI	1995	Ponderosa Fibres of America Inc., Santa Ana, CA	1992
Kieffer Paper Mills, Brownstown, IN	1992	Superior Recycling Co., Duluth, MN	1993
Mississippi River Corp., Natchez, MS	1993/1995		

n.a. - not available

*Will replace existing capacity

†New Mill

•PRACTICAL MAXIMUM CAPACITY

Practical Maximum Capacity, as defined in this survey, is the tonnage of paper, paperboard or pulp of normal commercial quality that could be produced with full use of equipment and adequate supplies of raw materials and labor, and assuming full demand. No allowance is made for losses due to unscheduled shutdowns, strikes, temporary lack of power, etc., which cause decreases in actual production but not in productive capacity. Capacity of paper machines which produce more than one grade is apportioned in accordance with actual production patterns or plans for future operation

Capacity is reported in short tons of net finished paper and paperboard and air-dry (10% moisture content) pulp. Shrinkage of bleached or semibleached pulp is taken into account.

Annual practical maximum capacity— includes changes in capacity only for the portion of the year in which they are actually effective

Year-end practical maximum capacity— assumes that all changes in capacity are in effect from the first day of the year in which they occur.

NEW MACHINES AND NET IMPROVEMENTS: Capacity increases or decreases are shown in two main groups: New Machines and Net Improvements.

New Machines — are defined as machines purchased or to be purchased from equipment manufacturers. Consequently, capacity changes resulting from transfers of paper machines from one mill to another are shown under Net Improvements.

Net Improvements — are defined as net changes resulting from modernization of machines, dismantling old machines, shifts in grades, etc.

Capacity increases from new machines are shown under New Machines for the first two years of operation (including the year of installation). Any additional capacity realized in a third or subsequent year is shown under Net Improvements.

MARKET PULP CAPACITY: Market pulp in this survey is defined as pulp produced in the U.S. for sale to pulp consumers. It excludes pulp for use or consumption by a producing mill or for shipment by a producing mill to other mills within its supply region which it owns, controls or with which it is affiliated. Shipments to owned mills outside the U.S. are defined as market pulp.

•PAPER GRADES

NEWSPRINT: Uncoated paper of a kind used for the printing of newspapers, of which not less than 65 percent by weight of the total fiber content consists of wood fibers obtained by a mechanical process, unsized or very lightly sized, having a smoothness on each side not exceeding 200 seconds Bekk, weighing not less than 40 g per square meter and not more than 57 g per square meter and having an ash content by weight not exceeding 8 percent. Does not include printing papers of types generally used for purposes other than newspapers such as groundwood printing papers for catalogs, directories, etc.

UNCOATED GROUNDWOOD: Uncoated papers containing more than 10% mechanical pulps (stone groundwood, refiner or thermomechanical) in their furnish, excluding newsprint.

MACHINE AND OFF MACHINE COATED: Bleached papers with a coating weight of at least 2 pounds (25 x 38 - 500) on either side and at least 50% of the coating consisting of pigment.

Coated Groundwood: Coated papers containing more than 10% mechanical pulp in their furnish.

Coated Free Sheet: Coated papers containing 10% or less mechanical pulp (mostly stone groundwood and/or refiner in their furnish).

UNCOATED FREE SHEET: Bleached uncoated printing and writing papers containing not more than 10% groundwood or other mechanical pulps in their furnish; i.e., offset, tablet, envelope, business papers (bond, ledger, mimeo, duplicator) form bond, cover and text and related papers.

BLEACHED BRISTOLS: Includes tabulating index, tag and file folder, coated cover bristols, and uncoated bristols (index, printing, and postcard).

COTTON FIBER: Papers containing 25% or more in their furnish of cotton, cotton rags, cotton waste, linters, linter pulp, flax, or similar fibers.

THIN PAPERS: Includes carbonizing, condenser, cigarette, bible, and similar papers.

PACKAGING AND INDUSTRIAL CONVERTING: Wrapping paper, shipping sack, bag and sack other than shipping sack, and other converting papers -- 18 pounds and over.

Unbleached Kraft: Paper containing more than 80% unbleached sulfate wood pulp. Wrapping paper, shipping sack, grocers sack and other bag, and other converting papers -- 18 lbs. and over (24 x 36 - 500).

Bleached Packaging and Industrial Converting: Paper made for similar end uses as unbleached kraft, but made from bleached, and semibleached sulfate and unbleached sulfite pulps. Wrapping paper, shipping sack, grocers and other bag and sack, and other converting papers -- 18 lbs. and over (24 x 36 - 500).

Specialty Packaging: Paper and board of all weights and furnishes, usually used as protective packaging for food and other consumer products, such as bakery bags, fast food and frozen food wraps. Also includes glassine, greaseproof and vegetable parchment paper.

Special Industrial: Paper and board, of all weights, calipers and furnishes, designed for specialized end uses and manufactured to exact customer specifications; includes abrasive paper, electrical insulation, filter paper and similar grades. Does not include wet machine board.

TISSUE: Includes sanitary grades: i.e., toilet, facial, napkin, toweling, sanitary napkin, wiper and special sanitary papers, and waxing, wrapping, wadding and miscellaneous grades.

• PAPERBOARD GRADES

UNBLEACHED KRAFT PAPERBOARD: Paperboard made from a furnish containing not less than 80% wood pulp produced by the kraft sulfate process.

Linerboard: Unbleached kraft paperboard manufactured for use as facing material when combining paperboard for conversion into corrugated or solid fiber boxes. Includes solid unbleached kraft linerboard, both Fourdrinier and Cylinder, mottled white linerboard and clay coated unbleached kraft linerboard.

Folding: Paperboard manufactured, such as clay coated unbleached kraft and bleached lined unbleached kraft backed, for conversion into folding cartons and beverage carriers.

Other: All unbleached kraft paperboard whose end use is not otherwise classified, such as board for a filler for solid fiber board to be fabricated into a shipping container, tube, can, drum, file folder, tag, automotive panel, etc.

SOLID BLEACHED PACKAGING PAPERBOARD: Paperboard made for use in packaging from a furnish containing not less than 80% virgin bleached wood pulp. Bleached bristols not manufactured for packaging are included in the proper bleached bristol classification under papers

Linerboard: Solid bleached paperboard, either Fourdrinier or Cylinder, manufactured for use as facing material when combining paperboard for conversion into corrugated or solid fiber boxes.

Folding: Solid bleached paperboard for conversion into folding cartons, such as folding cartons for ice cream, butter, oleomargarine, frozen foods, bakery products, cosmetics, drugs, etc.

Milk Carton and Food Service: Solid bleached paperboard for conversion into milk carton, heavyweight cup, and round nested food container, plate, dish and tray, and for packaging for moist, liquid and oily foods.

Other: Solid bleached paperboard for conversion into packaging of blister pack, tubes and other products not classified above and for industrial products not classified under bleached bristols.

SEMICHEMICAL PAPERBOARD: Paperboard made from a furnish containing not less than 75% virgin wood pulp, the predominant portion of which is produced by a semichemical process.

RECYCLED PAPERBOARD: Paperboard manufactured from a combination of recycled fibers from various grades of paper stock with the predominant portion of its furnish being recycled fibers: sometimes including a very minor portion of virgin fibers.

Linerboard: Recycled paperboard produced from a furnish containing less than 80% virgin kraft wood pulp and used as facing material when combining paperboard for conversion into corrugated or solid fiber boxes.

Corrugating Medium: Recycled paperboard produced from a furnish containing less than 75% virgin wood pulp and used as the fluting material when combining paperboard for conversion into corrugated boxes. Also includes container chip and filler board.

Container Chip and Filler Board: Recycled paperboard manufactured as a filler for solid fiber board for conversion into solid fiber boxes and other container chipboard (all chipboard under 26 pounds per 1000 sq. ft. manufactured for use as facing corrugated, solid fiber and single faced products which are used for interior packaging, e.g., pads, partitions, dividers, layers and cushioning).

Folding: Recycled paperboard manufactured with bending quality for conversion into folding cartons (including unlined chipboard, kraft lined, white lined and clay coated).

Set-up: Recycled paperboard manufactured with non-bending specifications for conversion into rigid or set-up boxes (including plain chipboard, newslined, white vat lined).

Gypsum Wallboard Facing: Recycled paperboard manufactured for use as liner or facing on gypsum board and plasterboard (includes white, cream, gray, blue and all colors).

Other: Recycled paperboard with the same characteristics as paperboard for bending packaging or non-bending packaging but not for non-packaging uses; plus recycled paperboard for end uses not otherwise classified, such as tag, file folder, tube, can, drum, match stem, tablet backs, toys, etc.

•CONSTRUCTION PAPER & BOARD

CONSTRUCTION PAPER: Sheathing paper, felts (roofing felts, floor covering, automotive felts, deadening, industrial, pipe covering, refrigerator), asbestos paper and asbestos filler paper, flexible wood fiber insulation.

WET MACHINE BOARD: Binders board, shoe board (e.g., counter board, heel board, innersole, etc.) automotive board, chair seat backing, coaster board, luggage, mill board, panel board, table top board, etc.

INSULATING BOARD: A fibrous-felted homogenous panel made by interfelting of the fibers (e.g., interior building board, wallboard, sound deadening board, acoustical tile, exterior sheathing board, roof insulation board, trailer board, etc.).

•WOOD PULP

DISSOLVING & SPECIAL ALPHA: Highly refined bleached white sulfite or sulfate pulp with a high content of alpha (pure cellulose) fiber.

SULFITE PAPER GRADES: Paper grade pulps produced by the sulfite process. Bleached pulp must achieve a G.E. Brightness of more than 75.

SULFATE PAPER GRADES: Paper grade pulps produced by the sulfate or soda process. Bleached pulp must achieve a G.E. Brightness of more than 75. Semibleached pulp must achieve a G.E. Brightness of not less than 45 or more than 75.

SEMICHEMICAL: High yield pulps produced with the use of some chemical agent such as neutral sulfite (N.S.S.C.), alkaline cook, chemipulp (defibrated pulp put through reaction chambers), chemimechanical pulp with a yield usually above 60%.

MECHANICAL: Fine textured, usually bright pulps, used in paper and paperboard manufacture and produced by mechanical rather than chemical processes.

Stone Groundwood: Pulp produced by grinding wood logs or bolts (usually 4 ft. in length) into relatively short fibers.

Refiner: Pulp produced by subjecting wood chips and/or residues to atmospheric or open discharge refining.

Thermomechanical: A high-yield pulp produced by a thermomechanical process in which wood particles are softened by preheating under pressure prior to a pressurized primary refining stage. Usually replaces or reduces the chemical pulp component in newsprint or groundwood papers.

•WOOD PULP FOR CONSTRUCTION PAPER & BOARD

Coarse, often brown, pulps used in the manufacture of insulating board and construction paper. Also includes similar pulps if used in the manufacture of wet machine board. Excludes pulp for hard pressed board.

Stone Groundwood and Refiner: Pulps produced by the stone groundwood or refiner processes but used in the manufacture of construction paper and board.

Defibrated/Exploded: Pulps produced by subjecting wood chips to preheating and pressurized refining. Similar to the thermomechanical process except that operating variables produce an economical, coarse brown pulp suitable only for construction paper and board.

Screening: Rejects and off-quality screenings from all grades of wood pulp except dissolving.

•FIBERS

Roundwood: Comprises roundwood bolts and logs (4 feet or longer, including tree lengths) brought to the pulpmill for chipping, or chips made from primary roundwood bolts and logs at a chipmill, remote from the pulpmill

Forest Residues: All logging residues such as portions of bolts or logs less than the minimum diameter specified by the consuming mill and poles, saplings, slash, limbs, twigs, or portions of bolts or logs not regarded as merchantable in normal pulpwood or sawlog operations. May also include merchantable portions of trees that will not be used for higher value products. Chips made from forest residues.

Manufacturing Residues: All mill residues such as slabs, edgings, trimmings, cores, planer shavings, sawdust or other wood residues of a wood manufacturing process and chips made from these residues.

Other Fibers: Cotton linters, cotton linter pulp, textile mill waste and cuttings, rags, waste rope and cordage, bagasse, flax, straw, jute, esparto, kenaf and all other vegetable fibers used in paper and paperboard manufacture.

•RECOVERED PAPER

Definitions are abstracted from the Institute of Scrap Recycling Industries' (ISRI) Scrap Specifications Circular 1993. The 51 grades and 33 specialty grades in this circular have been condensed into the five groupings listed below.

Mixed Papers: Mixed papers, super mixed papers, boxboard cuttings, mill wrappers, specialty grades and all other grades not elsewhere specified. ISRI grades 1-5 and 1S-22S, and 24S-33S.

Newspapers: Old newspapers, special news (including deink quality) over-issue news, white blank news, groundwood computer printout, publication blanks, mixed groundwood and flyleaf shavings, coated groundwood sections. ISRI grades 6-9, 22-27, 44 and 23S.

Corrugated: Old containers both corrugated and solid fiber, container plant cuttings, kraft paper and bags. ISRI grades 10-21.

Pulp Substitutes and High Grade Deinking: Includes ledger, tabulating cards, bleached sulfate shavings (unless used as a news substitute). Envelope and bleached sulfite and sulfate cuttings, coated book stock and computer printout. Print free grades are reported as Pulp Substitutes and printed grades, if deinked, are reported as High Grade Deinking. ISRI grades 28-43, 45-51.

This publication is recyclable.
Cover contains 50 percent recovered paper fibers. Overleaf contains 100 percent recovered paper fibers.

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